

Semiannual Monitoring Report: First Semiannual Event 2004

Houston Wood Preserving Works Houston, Texas

Union Pacific Railroad Company

Received

JUL 22 2004

Remediation Division Corrective Action Section

July 21, 2004

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Suite 300 Houston, Texas 77084 (281) 600-1000 (281) 600-1001 (fax)

July 21, 2004

Dr. Ata-ur Rahman

Austin, Texas 78753

12100 Park 35 Circle, MC 130

Permits Section

Received JUL 2 2 2004 Remediation Division Corrective Action Section Industrial and Hazardous Waste Division Texas Commission on Environmental Quality



Subject:

Transmittal of the Semiannual Monitoring Report: First

Semiannual Event 2004

Houston Wood Preserving Works, Houston, Texas

Dear Dr. Rahman:

On behalf of Union Pacific Railroad (UPRR), two copies of the referenced report are enclosed pursuant to the requirements of Section VII.B.2 of Compliance Plan No. CP-50343, issued in conjunction with Post-Closure Care Permit No. HW-50343-000. THW 3 / 547

Please call me at (281) 600-1000 if you have any questions regarding the enclosed report.

Sincerely,

Environmental Resources Management

Christopher M. Young, &G.

Chin M. Muy

GBR/jan **Enclosures**

cc: Mark Arthur, TCEQ-Austin Marsha Hill, TCEQ Region 12 - Houston Geoffrey B. Reeder, Union Pacific Railroad

Received

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Union Pacific Railroad Company Semiannual Monitoring Report: First Semiannual Event 2004 Houston Wood Preserving Works Houston, Texas July 21, 2004 Project No. 0014419 Principal Christopher M. Your Project Manager Christopher A. Cunningham, E.I.T. Project Scientist

Environmental Resources Management

15810 Park Ten Place, Suite 300

Houston, Texas 77084-5140

T: 281-600-1000 F: 281-600-1001

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1.0 INTRODUCTION

Routine semiannual ground water monitoring is required as a condition of the Compliance Plan (CP) for the former Houston Wood Preserving Works (HWPW) site, located at 4910 Liberty Road, Houston, Texas (Figure 1-1). These activities are performed to monitor ground water quality beneath a closed surface impoundment (Texas Natural Resource Conservation Commission [TNRCC] Permit Unit No. II.B.1). The surface impoundment was described in RCRA Permit No. HW-50343-000 and associated Compliance Plan (CP-50343), both issued by the TNRCC; [now referred to as the Texas Commission on Environmental Quality (TCEQ)]. The sampling event, analytical data, and this data evaluation report represent the first half of 2004 and fulfill the semiannual reporting requirements described in the CP, Section VII.B.2.

On March 15 and March 17, 2004, Environmental Resources Management (ERM) conducted ground water sampling activities at the site. These activities included sampling the on-site wells and piezometers associated with the surface impoundment.

Section VII.B.2 of the CP requires that a specific list of provisions be included in each semiannual report. As such, each provision listed below is addressed by number in Section 2 of this report. Some of the provisions listed in the CP refer to evaluation of a recovery system, if present. As of July 21, 2004, a recovery system had not been installed at this facility. Therefore, the few instances where a provision refers to a recovery system (i.e., provisions 5, 7, and 11) are notated in the text. The provisions as they relate to recovery wells were not addressed in this report. The following provisions are required for the semiannual report, pursuant to CP Section VII.B.2:

- 1. A narrative summary of the evaluations made in accordance with CP Sections V, VI, and VII for the preceding six-month period. These periods shall be January 1 through June 30 and July 1 through December 31;
- 2. The results of the chemical analyses, submitted in a tabulated format in a form acceptable to the Executive Director, which clearly indicates each parameter that exceeds the Ground Water Protection Standard (GWPS). Copies of the original laboratory report for chemical analyses showing detection limits and quality control and quality assurance data shall be provided if requested by the Executive Director;
- 3. Tabulation of all water level elevations (relative to mean sea level), depth to water measurements, and total depth of well measurements collected since the data that was submitted in the previous semiannual report;
- 4. Potentiometric surface maps showing the elevation of the water table at the time of sampling;
- 5. If a recovery system is installed, potentiometric surface maps showing delineation of the radius of influence, minimum and maximum gradient within the hydrologically influenced area, and the direction of ground-water flow gradients outside the radius of influence;

- 6. A notation of the presence or absence of non-aqueous phase liquids (NAPLs), both light and dense phases, in each well during each sampling event since the last event covered in the previous semiannual report and tabulation of depth and thickness of NAPLs, if detected;
 7. If a recovery system is installed, monthly tabulations of quantities of recovered ground-water and NAPLs (if encountered), and graphs of weekly recorded flow rates versus time for the recovery wells during each quarter;
 8. Tabulation of all data evaluation results pursuant to Section VI.D and status of each well listed on CP Table III with regard to compliance with the corrective action objectives and compliance with the GWPSs;
 9. Maps of the contaminated area depicting concentrations of naphthalene, acenaphthene, and total benzene, toluene, ethylbenzene, and xylenes (BTEX) as isopleth contours;
 10. An updated schedule summary as required by Section XI.A;
 - 11. Summary of any changes made to the monitoring/corrective action program and a summary of recovery well inspections, repairs, and any operational difficulties;
 - 12. Recommendation for any changes; and
 - 13. Any other items requested by the Executive Director.

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	2.0	FIRST SEMIANNUAL GROUND WATER SAMPLING EVENT FOR 2004
		This section contains a discussion of each of the semiannual report provisions required by CP Section VII.B.2, by reference number to the list of provisions in Section 1.
	2.1	NARRATIVE SUMMARY OF FIRST SEMIANNUAL ACTIVITIES
		CP Section VII.B.2.a requires a narrative summary of evaluations completed in accordance with CP Sections V, VI, and VII. Section V relates to the Corrective Action Program in place for the permitted unit. Section VI relates to the Ground Water Monitoring Program designed to evaluate the effectiveness of the Corrective Action Program. Section VII includes provisions for amending the Corrective Action Program and/or Compliance Plan. Each of these evaluations is provided below.
7	2.1.1	Corrective Action Program
]		Ground water samples were collected from the existing wells to assess affected ground water in the A-Transmissive Zone (A-TZ) and the B-Transmissive Zone (B-TZ). The definitions of the A-TZ and B-TZ are consistent with the Uppermost Transmissive Zone (UTZ) and Second Transmissive Zone (STZ), respectively, as defined in CP Provision I.A. and summarized as follows:
]		• A-TZ refers to the first sand unit encountered at approximately 35 feet above mean sea level (msl), averaging 6 to 8 feet in thickness.
]		 B-TZ refers to the second sand unit encountered at approximately 15 feet above msl, averaging 8 to 10 feet in thickness.
]		The following monitor wells were sampled (as designated by function in CP Table III; Appendix A to this report):
1		 A-TZ Point of Compliance (POC) wells: MW-01A, MW-02, MW-07, MW-10A, and MW-11A;
7		 A-TZ Corrective Action Observation (CAO) wells: MW-04, MW-05, MW-07, MW-08, and MW-09;
1		B-TZ POC wells: MW-10B, MW-11B, and P-10; and
}		B-TZ CAO wells: P-11 and P-12.
,]		In addition, MW-03, which is screened in the A-TZ within the closed impoundment, was also sampled.
1	2.1.2	Ground Water Monitoring
	•	ERM performed quarterly well inspections on March 15, 2004 and June 8 and 30, 2004 and ground water monitoring activities on March 15 through March 17, 2004. Ground water sampling was performed using procedures outlined in a U.S. EPA document titled <i>Low-Flow (Minimal Drawdown) Ground-Water Sampling</i>
]		

Procedures (EPA/540/S-95/504) published in April 1996. Purging and sampling were performed using a low-flow pump, with its sample intake set at the approximate center of the screened interval of each well.

The wells are equipped with dedicated polytetrafluoroethylene (PTFE) tubing for ground water sampling. A Master-Flex® peristaltic pump was used to collect the ground water samples. A one-foot section of disposable silicon tubing was placed around the pump head and attached to the PTFE tubing for proper operation of the pump. Ground water was pumped from the screened interval of the well at a flow rate of less than approximately 0.5 L/min. A flow-through cell and field meters were used to measure and evaluate field parameters including temperature, pH, specific conductivity, dissolved oxygen, and turbidity. When the field parameters had stabilized to the EPA-specified criteria, the well was sampled. The samples were also collected at a flow rate of less then 0.5 L/min. A compilation of recorded field parameters is included in Appendix B.

For each well, three 40-mL glass vials [for volatile organic constituent (VOC) analysis] and four 1,000-mL amber glass bottles [for semivolatile organic constituent (SVOC) analysis] were filled directly from the pumping apparatus described above. The bottles, which had been preserved previously by the laboratory, were sealed and packed in coolers with sufficient ice to maintain a sample temperature of approximately 4°C. The coolers with Union Pacific Railroad's (UPRR) samples were delivered to Severn Trent Laboratory, in Houston, Texas for analysis. Chain-of-Custody (COC) forms were completed and kept with their respective samples. Copies of the analytical data and COCs are included in Appendix C.

2.2 ANALYTICAL RESULTS

The results of the chemical analyses performed on the A-TZ and B-TZ ground water samples collected during the first semiannual sampling event of 2004 are summarized in Tables 2-1 and 2-2, respectively. Those compounds reported by the laboratory at concentrations greater than the GWPS are indicated in boxes on the tables. The CP sets the GWPS at the practical quantitation limit (PQL) for each of the compounds analyzed. Table 2-3 summarizes the field blank and trip blank results for quality assurance/quality control (QA/QC) purposes. Duplicate sample results are included on Table 2-1 for comparison with the original sample.

2.3 WELL MEASUREMENT

The following measurements were collected at each well in order:

Before Sampling

- light non-aqueous phase liquids (LNAPLs); and
- depth to ground water.

After Sampling

- dense non-aqueous phase liquids (DNAPLs); and
- total well depths.

Table 2-4 provides a summary of these measurements. LNAPL and DNAPL were not apparent in any CP well.

2.4 POTENTIOMETRIC SURFACE MAPS

The ground water elevation data described in Section 2.3 were used to create potentiometric surface maps of the A-TZ and B-TZ (Figures 2-1 and 2-2, respectively). A review of Figure 2-1 indicates that ground water flow is slightly toward the northeast with an estimated gradient of 0.00625 feet/foot (ft/ft) in the A-TZ. The flow in the B-TZ is toward the northwest with a gradient of 0.005 ft/ft (Figure 2-2).

2.5 POTENTIOMETRIC SURFACE MAPS FOR RECOVERY SYSTEM

As of June 30, 2004, a recovery system had not been installed at the closed surface impoundment. Therefore, this provision is not applicable.

2.6 NON-AQUEOUS PHASE LIQUIDS

As mentioned above, no LNAPL or DNAPL was apparent in any of the CP wells.

2.7 NAPL RECOVERIES

As of June 30, 2004, a recovery system had not been installed at the closed surface impoundment. Therefore, this item is not addressed herein.

2.8 ANALYTICAL DATA EVALUATION

CP Section VI.D describes two methods which may be used to determine the compliance status of a given well. The analytical results may be either directly compared to the GWPS (CP Table I; included in Appendix A herein), or statistically compared to the GWPS using the 99% significance level of the t-distribution. Table 2-5 shows the results of a direct comparison of data from the first semiannual sampling event to the GWPS. A boxed value indicates an exceedance of the GWPS. Wells and piezometers were considered to be compliant if each of the constituents listed in CP Table I was reported at a concentration less than or equal to the GWPS.

2.9 BTEX, ACENAPHTHENE, AND NAPHTHALENE ISOPLETHS

As specified by the CP, isopleth maps depicting concentrations of BTEX, acenaphthene, and naphthalene were constructed using the data presented in Tables 2-1 and 2-2. To facilitate generation of the contours, locations with results

		reported as <i>Not Detected</i> were assigned a value equal to one-half of the reported detection limit for contouring purposes. Figures 2-3 through 2-8 illustrate these
U		data.
	2.10	UPDATED COMPLIANCE SCHEDULE An updated compliance schedule is included as Appendix D of this report. The
		schedule has been updated from the Second Semiannual Monitoring Report, 2003.
	2.11	SUMMARY OF CHANGES MADE TO THE MONITORING/CORRECTIVE ACTION PROGRAM AND SUMMARY OF RECOVERY WELL INSPECTIONS AND MAINTENANCE
		The monitor well network was resurveyed on April 21 and 28, 2004. Table 2-4 and Figures 2-1 through 2-8 reflect the new survey locations and top of casing.
	2.12	RECOMMENDATION FOR CHANGES
0		A compliance plan renewal application was submitted to TCEQ on December 23, 2003 consistent with the renewal requirements for the RCRA permit at the site. Several changes to the ground water monitoring program were proposed in the renewal application. UPRR responded to TCEQ comments on the application
		and is awaiting issuance of the final permit. At this time, no changes are recommended.
	2.13	OTHER REQUESTED ITEMS
		To date, no other items have been requested by the Executive Director.
]		
]		
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Tables July 21, 2004 Project No. 0014419 **Environmental Resources Management** 15810 Park Ten Place, Suite 300 Houston, Texas 77084 (281) 600-1000 G:\2004\006287\0014419\5706Hrpt.doc

TABLE 2-1

Summary of Analytical Results for the A-Transmissive Zone (A-TZ) Semiannual Monitoring Report: First Semiannual Event 2004

Houston Wood Preserving Works Houston, Texas

Analyte	PQL (GWPS)	Monitor Well ID: Sample Date:	MW-01A 3/17/04		MW-02 3/17/04	_	MW-03 3/17/04	_	MW-04 3/16/04	MW-05 3/16/04	MW-07 3/16/04	MW-08 3/16/04	MW-09 3/15/04		MW-10A 3/16/04	MW-11A 3/16/04
Volatile Organic Constituents		-				_									ND	ND
Benzene	0.005		ND		ND		ND		ND	ND	ND	ND	ND		ND ND	ND
Chlorobenzene	0.005		ND		ND		ND		ND	ND	ND	ND	ND			ND
1.2-Dichloroethane	0.005		ND		ND		ND		ND	ND	ND	ND	ND		ND	ND
Methylene chloride	0.010		ND		ND		ND		ND	ND	ND	ND .	ND		ND	ND .
Ethylbenzene	0.005		ND		ND		ND		ND	ND	ND	ND	ND		ND	ND ND
Toluene	0,005		ND		ND		ND		ND	ND	ND	ND	ND		ND	ND
Xylene (total)	0.005		ND	Γ	0.0122 J		ND		ND	ND	ND	ND	ND		ND	טא
Semivolatile Organic Constituen		ı	0.04000		0.03018	1	0.1104		ND	0.000283 J	0.000285 J	ND	ND		ND	0.002777
Acenaphthene	0.010	l	0.04226	L	0.000418 J	! I	0.000833	JL	ND	ND	ND	ND	ND		ND	ND
Acenaphthylene	0.010		0.000785		0.0004163		0.000033	JL	0,00026 J	0.000251 J	0.000219 J	ND	ND		ND	0.000321 J
Anthracene	0.010		0.001854		0.001454 ND		0.000379 J		ND	ND	ND	ND	ND		ND	ND
Benzo(a)anthracene	0.010		ND		ND		0.000511	UL.	ND	ND	ND	ND	ND		ND	ND
Benzo(a)pyrene	0.010		ND .		ND		ND		ND	ND	ND	ND	ND		ND	ND
bis(2-Chloroethoxy)methane	0.010		ND ND		ND		ND		ND	ND	ND	ND	ND		ND	ND
2-Chloronaphthalene	0.010		ND		ND		ND		ND	ND	ND	ND	ND		ND	ND
Chrysene	0.010		0.0194	Г	0.01945	1	ND		ND	ND	ND	ND	ND		ND	0.000463 J
Dibenzofuran	0.010			Ub L	0.01943	J U	0.000654	Ub	ND		Ub ,000199 J Ub	.000268 J Ub	.00033 J	Ub	ND	0.000521 Ub
Di-n-butyl phthalate	0.010		******	UB	0.000752 ND	U	ND	OD	ND	ND	ND	ND	ND		ND	ND
2,4-Dimethylphenol	0.010		ND ND		ND		ND		ND	ND	ND	ND	ND		ND	ND
4,6-Dinitro-o-cresol	0.050		ND ND		ND		ND		ND	ND	ND	ND	ND		ND	ND
2,4-Dinitrotoluene	0.010		ND ND		ND		ND		ND	ND	ND	ND	ND		ND	ND
2,6-Dinitrotoluene	0.010		ND ND		ND		ND		ND	ND	ND	ND	ND		ND	ND
1,2-Diphenylhydrazine	0.010			u	ND	U	0.000943	U	0.001025	ND	ND	ND	ND		0.000916	0.001042
bis(2-Ethylhexyl)phthalate	0.010		0.000973	U	0.001861	U	0.01034] jĽ	ND	ND	ND	ND	ND		ND	0.000394 J
Fluoranthene	0.010		0.003337	з г	0.001001	7	0.0427	JL	ND	ND	ND	ND	ND		ND	0.000354 J
Fluorene	0.010		0.02334	J	0.02033		ND	7 0-	ND	ND	ND	ND	ND		ND	ND
2-Methylnaphthalene	0.010		0.005221		0.001694		0.000264 J	18	ND	ND	ND	ND	ND		ND	0.002776
Naphthalene	0.010		0.000919		0.000604 ND		0.000204 0 ND	JL	ND	ND	ND	ND	ND		ND	ND
Nitrobenzene	0.010		ND		ND ND		ND		ND	· ND	ND	ND	ND		ND	ND
p-Nitrophenol	0.050		ND				ND		ND	ND	ND	ND	ND		ND	ND
N-Nitrosodiphenylamine	0.010		ND	_	ND			·R		ND	ND	ND	ND		ND	ND
Pentachlorophenol	0.050		ND	R	ND	R		JL		ND	ND	ND	ND		ND	ND
Phenanthrene	0.010		0.002194		0.002468		0.000663 ND	JL	. ND ND	ND	ND	ND	ND		ND	ND
Phenol	0.010		ND		ND		0.004965	JL		ND ND	ND	ND	ND		ND	ND
Pyrene	0.010		0.00117		0.000883		0,004965	JL	, ואט	110		–				

NOTES:

ND = Not detected at the Method Detection Limit (MDL), which is less than or equal to the Practical Quantitation Limit (PQL) in all instances and can be found in the laboratory reports in Appendix C.

indicates value reported above the GWPS.

b = Target analyte was found in the method blank. L = Low bias

(b) P-10D is a duplicate of P-10.

PQL = Practical Quantitation Limit, as defined on Table I of the Compliance Plan and determined by the analytical methods of EPA SW-846 Test Methods for Determining Solid Wastes . The PQL is the Ground Water Protection Standard (GWPS).

J = Estimated value between the reporting limit and MDL.

⁽a) MW-10BD is a duplicate of MW-10B. U = Not Detected

R = Rejected

TABLE 2-2

Summary of Analytical Results for the B-Transmissive Zone (B-TZ) Semiannual Monitoring Report: First Semiannual Event 2004

Houston Wood Preserving Works Houston, Texas

	PQL	Monitor Well ID:	MW-10B		MW-10BD ^(a)		MW-11B		P-10 ^(b)		P-10D		P-11		P-12	
Analyte	(GWPS)	Sample Date:	3/16/04		3/16/04	_	3/16/04		3/16/04	_	3/16/04	_	3/17/04	_	3/17/04	
Benzene	0.005	-	0.00231 J		0.00228 J		ND		ND		ND		ND		ND	
Chlorobenzene	0.005		ND		ND		ND		ND		ND		ND		ND	
1,2-Dichloroethane	0.005		ND		ND		ND		ND		ND		ND		ND	
Methylene chloride	0.010		ND		ND		ND		ND		ND		ND		ND	
Ethylbenzene	0.005		ND		ND		ND		ND		ND		ND		ND	
Toluene	0.005		ND		ND.		ND		ND		ND		ND		ND	
Xylene (total)	0.005		ND		ND		ND		ND		ND		ND		ND	
Acenaphthene	0.010	Г	0.04421		0.04517] [0.0486]	ND	თ [0.08375] w [0.1301		ND ND	
Acenaphthylene	0.010	_	0.000833	_	0.000855		0.001163		ND	UJ	0.000586	UJ	ND		ND ND	
Anthracene	0.010		0.002478		0.00243		0.000854		ND	UJ	0.004746	UJ	0.005611		ND	
Benzo(a)anthracene	0.010		ND		ND		ND		ND		ND		ND		ND	
Benzo(a)pyrene	0.010		ND		ND		ND		ND		ND		ND	UJ	ND	
bis(2-Chloroethoxy)methane	0.010		ND		ND		ND		ND		ND		ND	UJ	ND	
2-Chloronaphthalene	0.010		ND		ND		ND		ND		ND		ND		ND	
Chrysene	0.010		ND	_	ND		ND	-	ND		ND	٦.	ND a assess		ND ND	
Dibenzofuran	0.010	<u> </u>	0.0171	1 [0.01702	J L	0.01581]	ND	nn [0.03219]]	0.003985	UЬ	0.000922	Ub
Di-n-butyl phthalate	0.010	•	.000303 J	Ub	.000251 J	UЬ	.000348 J	Ub	.000379 J	UJb	0.000418 J	Ub	0,000923 ND	OB	0.000922 ND	UU
2,4-Dimethylphenol	0.010		ND		ND		ND		ND		ND		ND ND		ND	
4.6-Dinitro-o-cresol	0.050		ND		ND		ND		ND		ND		ND	UJ	ND	
2.4-Dinitrotoluene	0.010		ND		ND		ND		ND		ND		ND	UJ UJ	ND	
2,6-Dinitrotoluene	0.010		ND		ND		ND		ND		ND		ND	UJ	ND	
1,2-Diphenylhydrazine	0.010		ND		ND		ND		ND		ND ND		0.000904	IJ	0.001746	U
bis(2-Ethylhexyl)phthalate	0.010		0.000982		0.000988		ND		ND		0.003192		0.000504	Ü	ND	•
Fluoranthene	0.010		0.001567		0.001681	- ·	0.001971	7	ND	UJ		l L [0.05025	ר	ND	
Fluorene	0.010		0.02079] [0.0213	_	0.0112	╛	ND	UJ	0.04259	- 1	0.001097		ND	
2-Methylnaphthalene	0.010		0.00013 J		ND		0.001569	٦ .	ND	UJ.	0.0218	-	0.007031		ND	
Naphthalene	0,010		0.001853		0.001653	1	0.01168	_}	ND	UJ	ND	٦,	ND		ND	
Nitrobenzene	0.010		ND		ND		ND		ND		ND		ND		ND	
p-Nitrophenol	0.050		ND		ND		ND		ND		ND		ND		ND	
N-Nitrosodiphenylamine	0.010		ND		ND		ND		ND		ND		ND	R	0.000337	JL
Pentachlorophenol	0.050		ND		ND		ND		ND ND	UJ	0.02155	٦.	0.01956	ר ``	ND	
Phenanthrene	0.010		0.008858		0.00956		0.000198 J		ND ND	UJ	ND	٦,	ND	_	ND	
Phenol	0.010		ND		ND		ND 0.000004		ND ND	UJ	0.001372	J	0.00445		0.007348	
Pyrene	0.010		0.000718		0.000694		0.000991		NO	UJ	0.001372	•	5,55.10			

NOTES:

All values reported in mg/L.

ND = Not detected at the Method Detection Limit (MDL), which is less than or equal to the Practical Quantitation Limit (PQL) in all instances and can be found in the laboratory reports in Appendix C.

PQL = Practical Quantitation Limit, as defined on Table I of the Compliance Plan and determined by the analytical methods of EPA SW-846 Test Methods for Determining Solid Wastes.

The PQL is the Ground Water Protection Standard (GWPS).

indicates value reported above the GWPS.

J = Estimated value between the reporting limit and MDL.

L = Low bias

U = Not Detected

R = Rejected

b = Target analyte was found in the method blank.

(a) MW-10BD is a duplicate of MW-10B.

(b) P-10D is a duplicate of P-10.

TABLE 2-3

Summary of Analytical Results for Quality Assurance/Quality Control Samples Semiannual Monitoring Report: First Semiannual Event 2004

Houston Wood Preserving Works Houston, Texas

			Field Blank		Field Blank	Trip Blank			
Analyte	PQL (GWPS)	Sample Sample	FB-031504-1SA04 3/17/04		FB-031704-1SA04 3/17/04	TB01-1SA04 3/16/04	TB02-1SA04 3/17/04		
Methylene chloride Di-n-butyl phthalate bis(2-Ethylhexyl)phthalate	0.010 0.010 0.010		ND 0.000514 ND	Ub	ND 0.00361 J ND	ND NA NA	ND NA NA		

NOTES:

All values reported in mg/L.

ND = Not detected at the Method Detection Limit (MDL), which is less than or equal to the Practical Quantitation Limit (PQL) in all instances and can be found in the laboratory reports in Appendix C. NA = Not Analyzed.

PQL = Practical Quantitation Limit, as defined on Table I of the Compliance Plan and determined by the analytical methods of EPA SW-846 Test Methods for Determining Solid Wastes. The PQL is the Ground Water Protection Standard (GWPS).

J = Estimated value between the reporting limit and MDL.

b = Target analyte was found in the method blank.

TABLE 2-4

Water Level and Total Depth of Well Measurements Semiannual Monitoring Report: First Semiannual Event 2004

Houston Wood Preserving Works Houston, Texas

Well ID	Top of Casing ⁽¹⁾ Elevation (ft MSL)	Depth to Water (ft TOC)	Water Surface Elevation (ft MSL)	Total Depth of Well as Measured (ft TOC)	Total Depth as Completed (ft TOC) *
A-TZ Monito	oring Locations				
MW-01A	47.92	3.49	44.43	19.6	20
MW-01A	47.97	2.87	45.10	18.36	20
MW-03	48.34	3.27	45.07	18.86	21 .
MW-04	49.85	4.8	45.05	21.59	23
MW-05	49.24	4.22	45.02	27.31	28
MW-07	48.86	3.89	44.97	24.71	N/A
MW-08	49.33	4.31	45.02	24.99	27
MW-09	49.26	4.18	45.08	25.38	27
MW-10A	49.86	4.69	45.17	25.49	26
MW-11A	50.05	4.99	45.06	23.93	24
B-TZ Monit	oring Locations				
MW-10B	49.94	5.78	44.16	46.46	49
MW-10B	50.18	5.16	45.02	46.74	47
	47.69	2.85	44.84	42.83	N/A
P-10	48.98	4.51	44.47	42.69	52
P-11 P-12 ⁽²⁾	48.78	3.55	45.23	N/A	52

NOTES:

Wells were gauged on March 15, 2004 except where noted.

Non-aqueous phase liquids were not measured in any well.

ft MSL = feet above Mean Sea Level

ft TOC = feet below the Top Of (the well) Casing

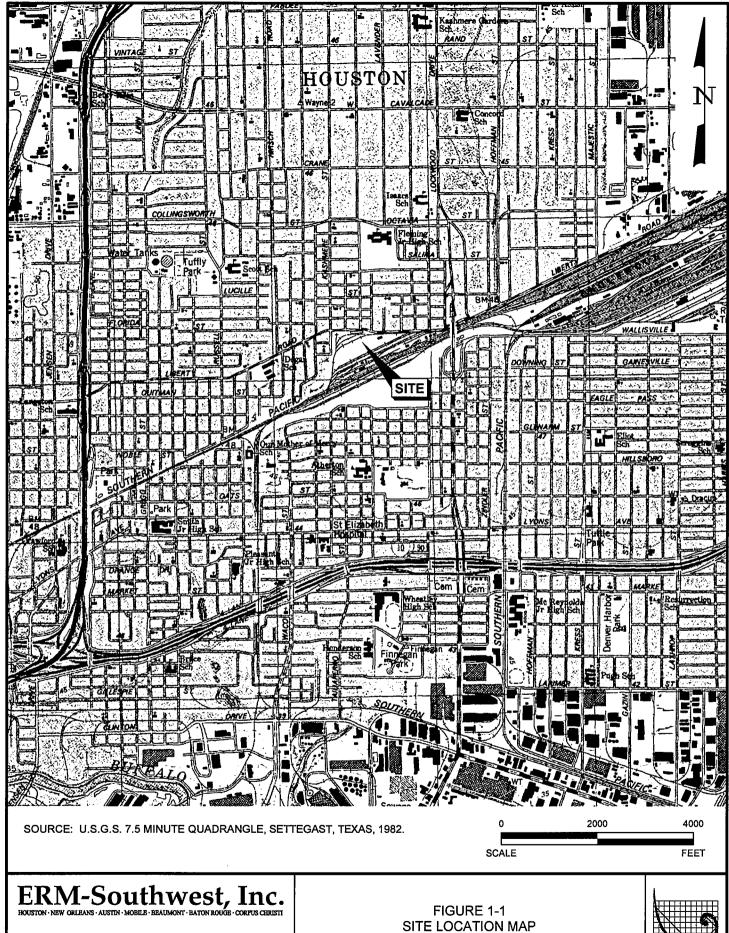
* Reported during well installation and completion

N/A = Information not available

- (1) Resurveyed on April 21 and 28, 2004.
- (2) Gauged on March 17, 2004 due to access to well.

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Π		TABLE 2-5 Sliance Status of Wells and Piezometers	
U		Nonitoring Report: First Semiannual Ev Houston Wood Preserving Works	ent 2004
П		Houston, Texas	
U	A-TZ Monitoring Location	Well Designation	Compliance Status
	MW-01A MW-02 MW-03	Point of compliance Point of compliance Point of compliance	Non-Compliant Non-Compliant Non-Compliant
	MW-10A MW-11A	Point of compliance Point of compliance	Compliant Compliant
	MW-04 MW-05 MW-07	Corrective action observation Corrective action observation Corrective action observation	Compliant Compliant Compliant
Π	MW-08 MW-09	Corrective action observation Corrective action observation	Compliant Compliant
n	B-TZ Monitoring Location	Well Designation	Compliance Status
	MW-10B MW-11B P-10	Point of compliance Point of compliance Point of compliance	Non-Compliant Non-Compliant Non-Compliant
U ·	P-11 P-12	Corrective action observation Corrective action observation	Non-Compliant Compliant
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Figures July 21, 2004 Project No. 0014419 **Environmental Resources Management** 15810 Park Ten Place, Suite 300 Houston, Texas 77084 (281) 600-1000 G:\2004\006287\0014419\5706Hrpt.doc



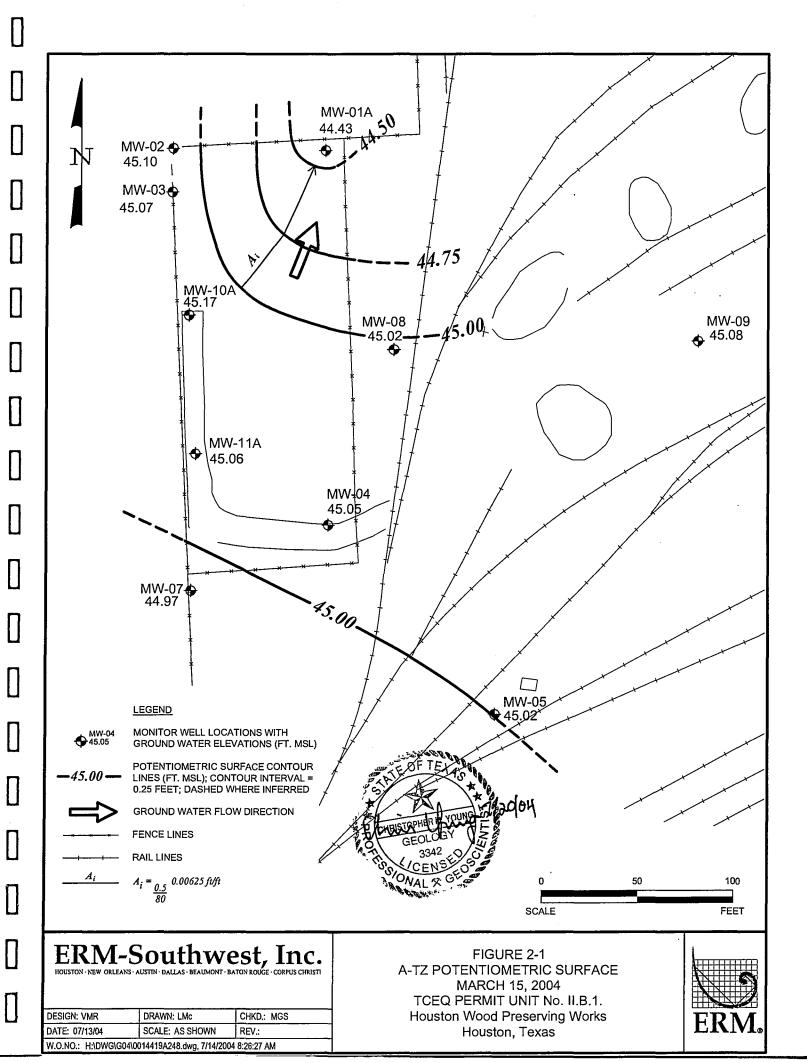
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 DRAWN: CAK
 CHKD.: PJG

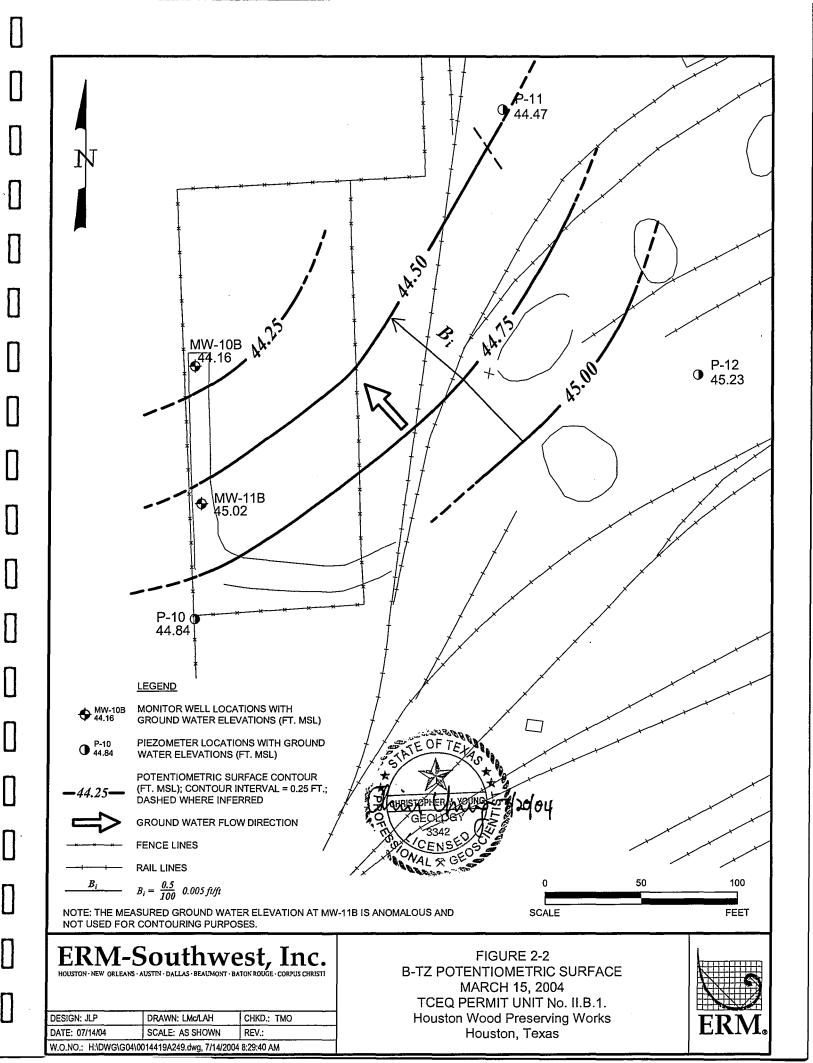
 DATE: 07/13/04
 SCALE: AS SHOWN
 REV.:

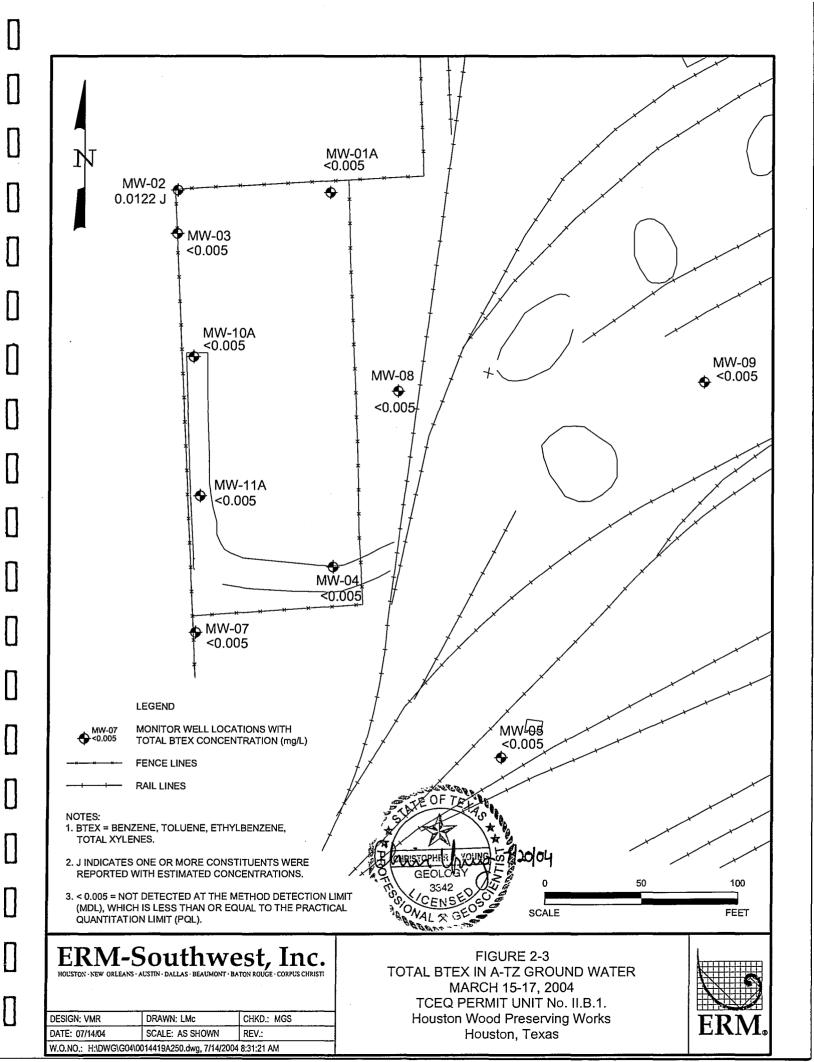
 W.O.NO.: H:\DWG\G04\0014419A247.dwg, 7/14/2004 8:53:58 AM

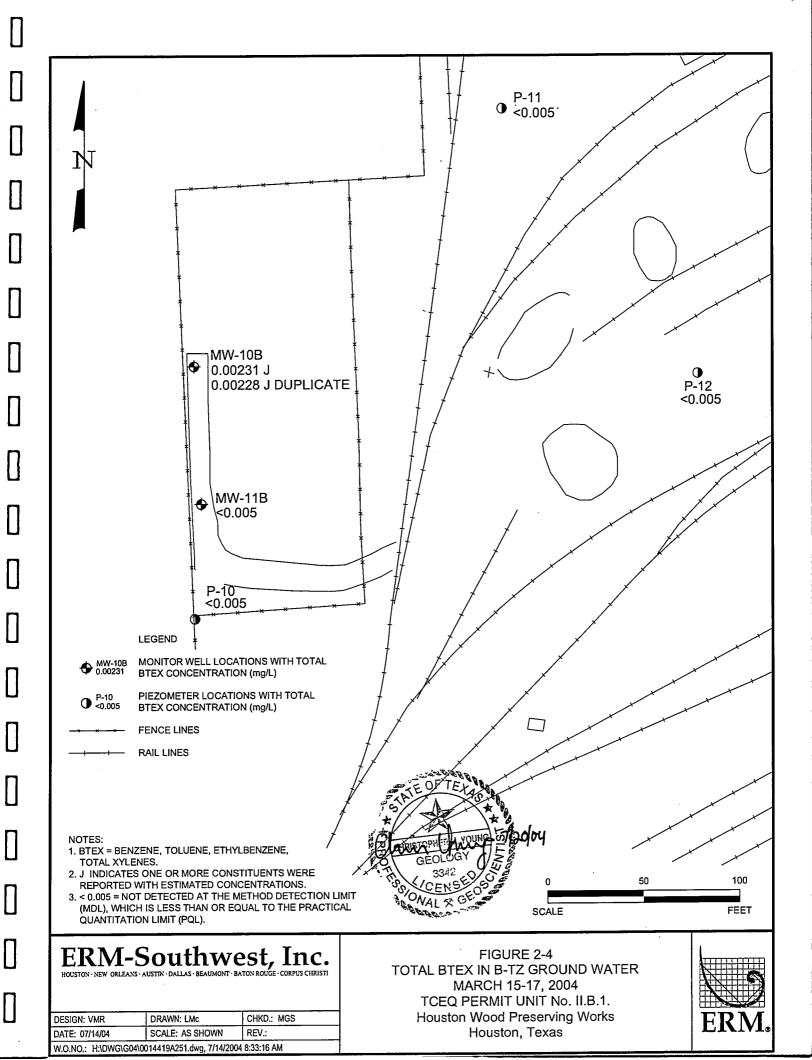
SITE LOCATION MAP
Houston Wood Preserving Works
Houston, Texas

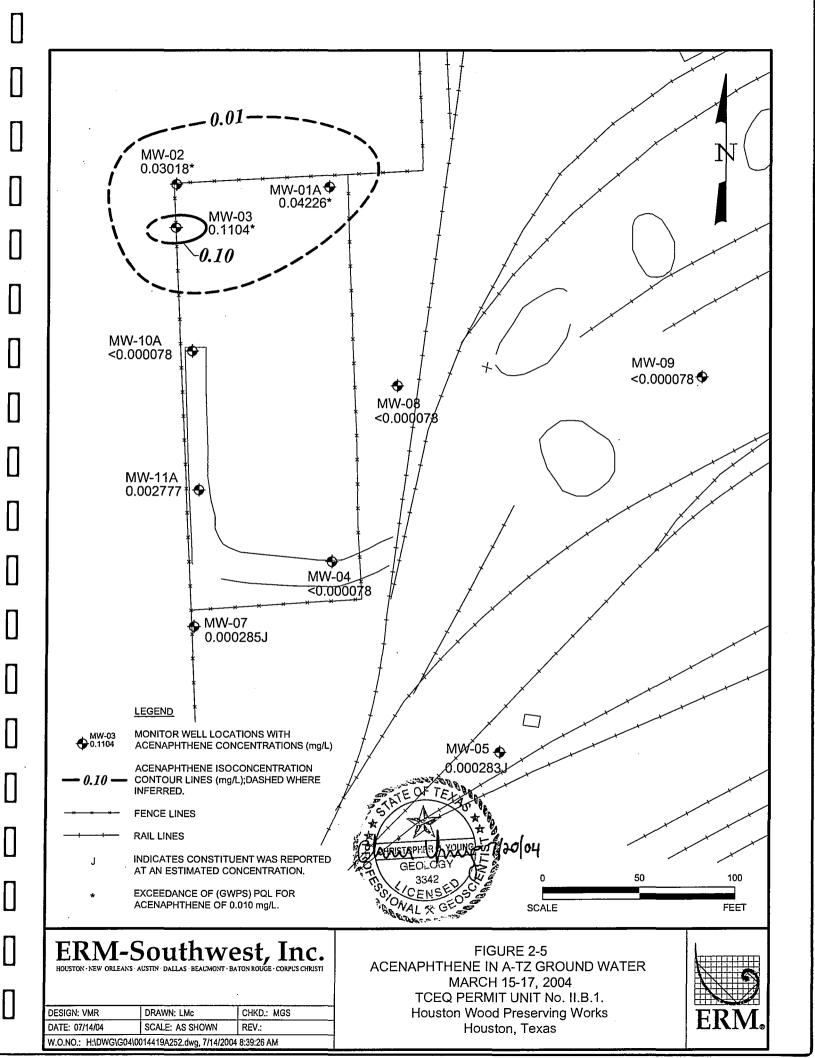


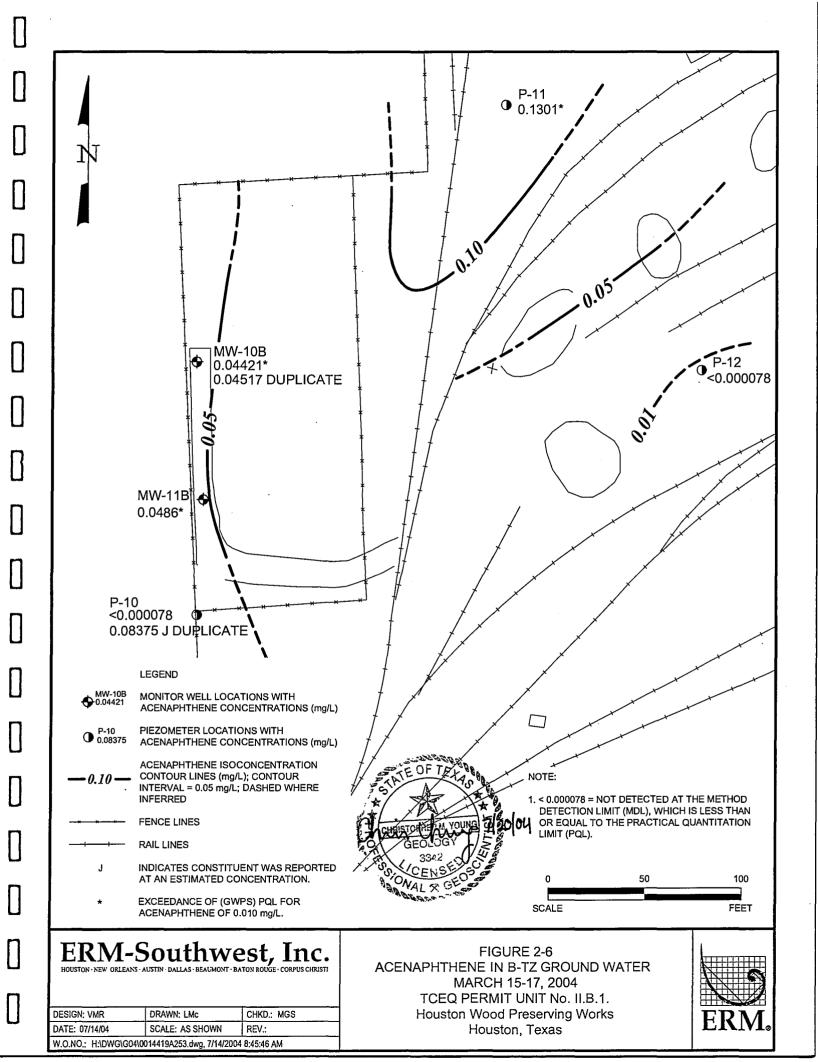


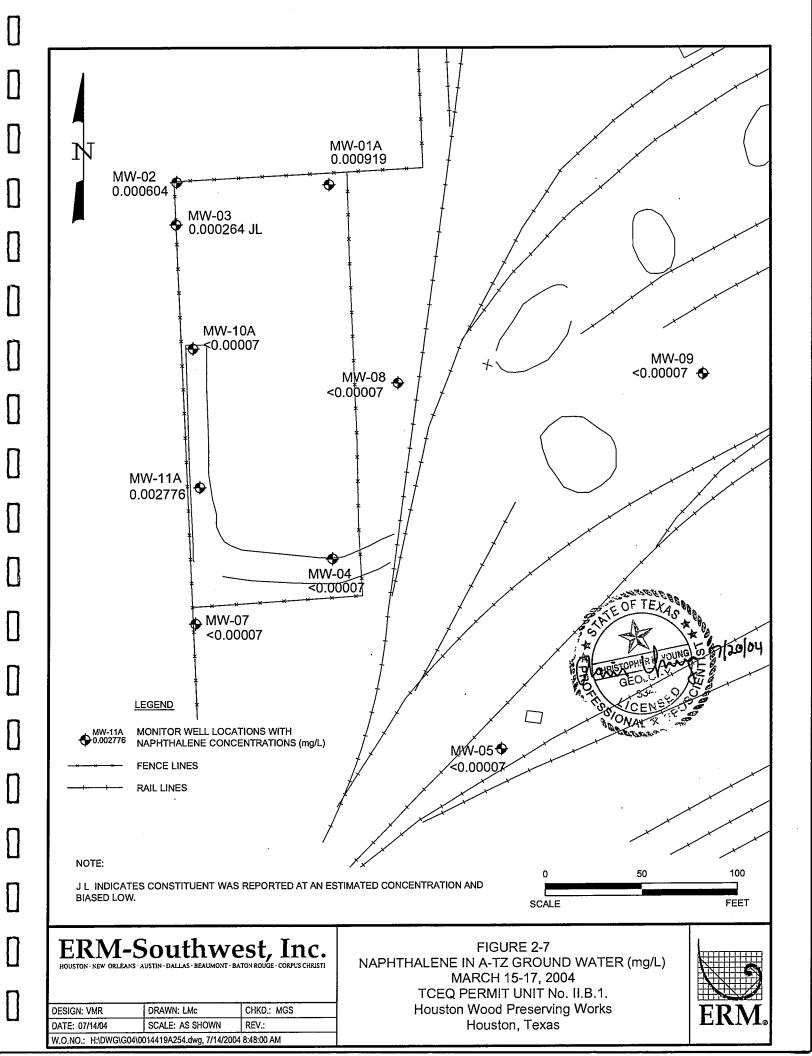


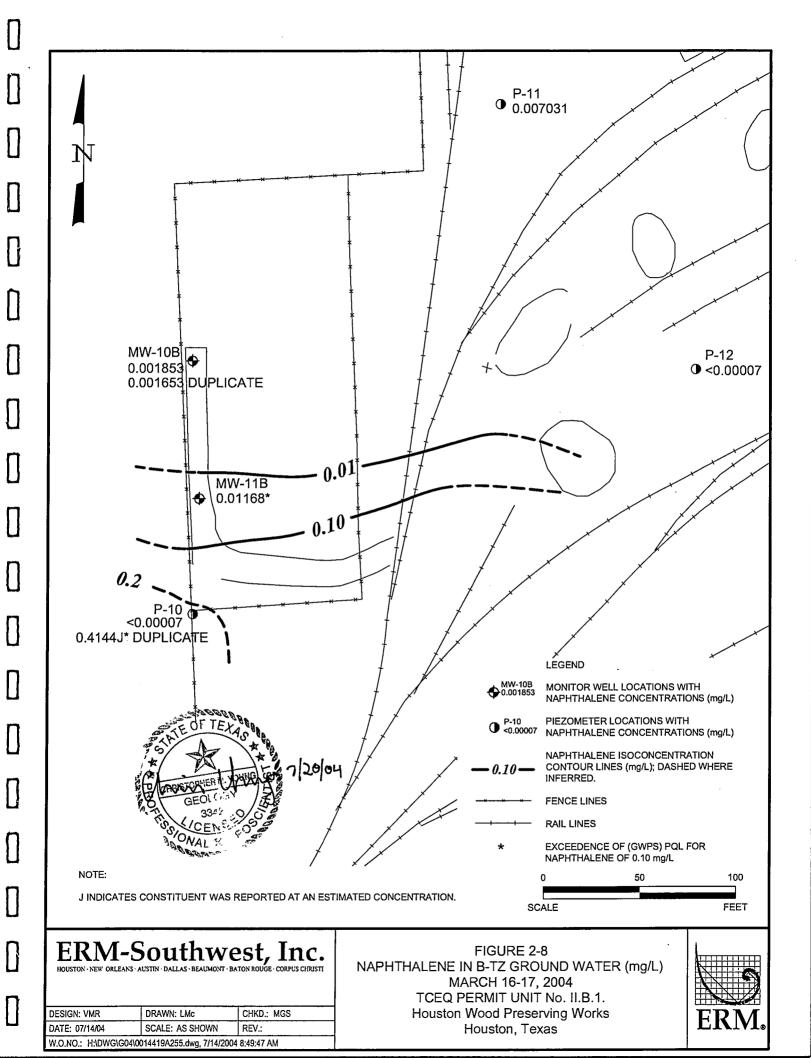












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	Compliance Plan Tables Appendix A	
	July 21, 2004 Project No. 0014419	
	Environmental Resources Management 15810 Park Ten Place, Suite 300 Houston, Texas 77084 (281) 600-1000	ř
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TABLE I

Table of Hazardous and Solid Waste Constituents and Concentration Limits for Ground-Water Protection Standard

COLUMN A	COLUMN B
Hatardous Constituents	Concentration Limits (mg/l)
Acenaphthene	ND (0.010)
Acenaphthylene	ND (0.010)
Anthracene	ND (0.010)
Benzene	ND (0.005)
Benzo(a) anthracene	ND (0.010)
Benzo(a) pyrene	ND (0.010)
bis(2-Ethylhexyl)phthalate	ND (0.010)
bis(2-Chloroethoxy)methane	ND (0.010)
Chlorobenzene	ND (0.005)
2-Chloranaphthalene	ND (0.010)
Chrysene	ND (0.010)
Dibenzofuran	ND (0.010)
1,2-Dichlorethane	ND (0.005)
Dichloromethane	ND (0.005)
2,4-Dimethylphenol	ND (0.010)
Di-n-butyl phthalate	ND (0.010)
4,6-Dinitro-o-cresol	ND (0.050)
2,4-Dinitrotoluene	ND (0.010)
2,6-Dinitrotoluene	ND (0.010)
<pre>1,2-Diphenylhydrazine</pre>	ND (0.010)
Ethylbenzene	ND (0.005)
Fluoranthene	ND (0.010)
Fluorene	ND (0.010)
Methylene chloride	ND (0.010)
2-Methylnaphthalene	ND (0.010)
Naphthalene	ND (0.010)
Nitrobenzene	ND (0.010)
4-Nitrophenal	ND (0.050)
N-Nitrosodiphenylamine	ND (0.010)
Pentachlorophenol	ND (0.050)
Phenanthrene	ND (0.010)
Phenol	ND (0.010)
Pyrene	ND (0.010)
Toluene	ND (0.005)
Xylenes	ND (0.005)

Mon-detectable at Practical Quantitation Limit as determined by the analytical methods of the United States Environmental Protection Agency publication SW-346 Test Methods for Evaluating Solid Waste, Third Edition, November 1986, (USEPA SW-346) and as listed in the July 3, 1987 edition of the Federal Register and later editions. Practical Quantitation Limit (PQL) is indicated in parentheses. Practical Quantitation Limits are the lowest concentrations of analytes in ground-water that can be reliably determined within specified

Compliance Plan No. CP-50343 Southern Pacific Transportation Co.

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limits of precision and accuracy by the indicated methods under routine laboratory operating conditions.

TABLE II

Table of Indicator Parameters and Concentration Limits for Ground-water Protection Standard

		·	
	COLUMN A	COLUMN 3	
iazaro	dous Constituents	Concentration Limits (mg/l)	
	Acenaphthene ,	ND (0.010)	
	Anthracene	NO (0.010)	
	Benzene	ND (0.00S)	
	bis(2-Ethylhexyl)phthalate	NO (0.010)	
	Dibenzofuran	ND (0.010)	
	2,4-Dimethylphenol	ND (0.010)	
	Ethylbenzenc	ND (0.005)	
	Fluoranchene	NO (0.010)	
	Fluorene	ND (0.010)	
	Methylene Chloride	ND (0.010)	
	2-Methylnaphthalene	ND (0.010)	
	Naphthalene	ND (0.010)	
	Phenanthrene	ND (0.010)	
	Pyrene	ND (0.010)	
	Toluene	ND (0.005)	
	Xylenes	ND (0.005)	

N.D. Non-detectable at Practical (Quantitation Limit as determined by the analytical methods of the United States Environmental Protection Agency publication SW-346 Test Methods for Evaluating Solid Waste, Third Edition, November 1986, (USEPA SW-846) and as listed in the July 8, 1987 edition of the Federal Register and later editions. Practical Quantitation Limit (PQL) is indicated in parentheses. Practical Quantitation Limits are the lowest concentrations of analytes in ground-water that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory operating conditions.

TABLE III

Designation of Wells by Function

1. POINT OF COMPLIANCE WELLS A. Upper Transmissive Zone (existing) MW-1 MW-2 Semi-annual MW-7 Semi-annual KW-10* Semi-annual

2. BACKGROUND WELLS

MW-11.

As proposed in the Compliance Plan Application, background values of the tested constituents will be assumed to be the Practical Quantitation Limit (PQL), and therefore, negate the need for background wells, unless this Compliance Plan Is modified under Section VI.A.

3. CORRECTIVE ACTION OBSERVATION WELLS

SAMPLING FREQUENCY

Semi-annual

A. On-site Uppermost Transmissive Zone (existing)

MW-4		Semi-annual
MW-5	•	Semi-annual
MW-7		Semi-annual
MM-3		Semi-annual
MM - 9		Semi-annual

*Point of Compliance wells noted with an asterisk are to be installed within ninety (90) days of issuance of this Compliance Plan along the property boundary between existing monitor wells MW-2 and MW-7.

Field Parameters
Appendix B
July 21, 2004 Project No. 0014419
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Environmental Resources Management
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TABLE B-1

Ground Water Sampling Field Parameters

Semiannual Monitoring Report: First Semiannual Event 2004 Houston Wood Preserving Works Houston, Texas

Well ID: Date Sampled:	MW-01A 3/17/04	MW-02 3/17/04	MW-03 3/17/04	MW-04 3/16/04	MW-05 3/16/04	MW-07 3/16/04	MW-08 3/16/04	MVV-09 3/15/04
Time Sampled (hrs CST)	1040	950	852	902	1445	910	1315	1410
Temperature (°C)	21.4	21.6	22.4	19.4	21.5	19.0	20.6	21.3
pH (Standard Units)	7.04	6.72	6.84	6.63	6.88	3.82	7.23	6.46
Specific Conductivity (uS)	1,696	775	928	1,068	631	837	488	928
Dissolved Oxygen (mg/L)	0.1	0.1	0.1	0.1	1.6	4.5	5.2	3.5
Turbidity (NTU)	34.72	23.93	6.69	0.00	8.93	10.53	0.0	0.00
Well ID: Date Sampled:	MW-10A 3/16/04	MW-10B 3/16/04	MW-11A 3/16/04	MW-11B 3/16/04	P-10 3/16/04	P-11 3/17/04	P-12 3/17/04	
Time Sampled (hrs CST)	1425	1310	1002	1050	1010	855	1250	
Temperature (°C)	22.7	22.5	19.6	21.2	19.7	20.7	23.4	
pH (Standard Units)	6.97	6.95	7.05	6.94	7.12	6.54	7.04	
Specific Conductivity (uS)	1,079	1,378	1,233	1,309	1,137	1,433	1,480	
Dissolved Oxygen (mg/L)	2.3	0.1	0.6	0.1	0.2	0.7	1.0	
Turbidity (NTU)	0.00	41.52	25.08	0.00	3.40	3.46	0.00	

NOTES:

CST = Central Standard Time NTU = Natural Turbidity Unit

Laboratory Analytical Reports Appendix C July 21, 2004 Project No. 0014419 **Environmental Resources Management** 15810 Park Ten Place, Suite 300 Houston, Texas 77084 (281) 600-1000 G:\2004\006287\0014419\5706Hrpt.doc

APPENDIX C-1

Data Usability Summary

Houston Wood Preserving Works Houston, Texas

Environmental Resources Management (ERM) reviewed a laboratory analytical data package 270409 from Severn Trent Laboratories of Houston, Texas for the analysis of 12 ground water samples collected on March 15-16, 2004 in the area of the former Houston Wood Preserving Works site. Data were reviewed to assess conformance with the requirements of the *Review and Reporting of COC Concentration Data* TRRP-13 (December 2002) and adherence to project data quality objectives.

Purpose of Sampling Event: Continuation of on-site and off-site investigation.

Analysis requested included:

SW-846 8270C - Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) (low-level and Selective Ion Monitoring (SIM))

SW-846 8260B – Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Data were reviewed and validated as described in the TRRP-13 Guidance Document and the results of the review/validation are discussed in this Data Usability Summary (DUS). The following laboratory submittals were reviewed by ERM:

- Analytical data report,
- Laboratory Review Checklist (LRC), and
- Exception Reports (ER).

The results of supporting quality control (QC) analyses are summarized in the QC section of the analytical report.

The reportable data, LRCs and ERs included in this review are attached to this DUS.

Project Data Quality Objectives for each analytical method are listed in Table 1.

Introduction

Ten ground water samples and two duplicate ground water samples were analyzed for semivolatile organic compounds (SVOCs) and volatile organic compounds (VOCs). Rinsate and field blanks were not provided to the laboratory for analysis. One field blank was provided to the laboratory and analyzed for VOCs and SVOCs and one trip

u	
	blank was provided with the laboratory package and analyzed by the laboratory for VOCs only. Table 2 lists the sample identifications cross-referenced to laboratory identifications.
	Data Review / Validation Results
	Analytical Results
0	Qualified sample data are listed on Table 3. Not Detected results are reported as less than the value of the sample quantitation limit (SQL) as defined by TRRP. According to the LRC, some SQLs were elevated because of dilutions necessary for analysis.
_ _	Preservation and Holding Times
U	The samples were evaluated for agreement with the chain-of-custody (COC). The
	samples were received in the appropriate containers and in good condition with the paperwork filled out properly. Most sample receipt temperatures were within the acceptance criteria of $4 + / - 2$ degrees C. Two temperatures (1.9 and 1.7 degrees C) were
	slightly below the acceptance criteria. Qualifiers were not added to the data because of the slightly lower cooler temperature. The samples were preserved in the field as specified in SW-846 Table 2-36. Samples were prepared and analyzed within holding
0	times as specified in SW-846 Table 2-36.
о С	Calibrations and Tunes
U	According to the LRC, initial calibration and continuing calibration data met SW-846 method requirements for VOC and SVOC analyses. The data package documents satisfactory instrument performance calibrations (GC/MS tunes) for VOC and SVOC
	analyses.
n	Blanks
U	Method blank analyses were reported as Not Detected for SVOC SIM.
	The VOCs method blank analyzed on 3/19/04 at 12:22pm had a detection of methylene chloride of 3.63226 ug/L. Associated samples were reported as Not Detected for
Π	methylene chloride, so qualification of the data was not necessary.
<u>.</u>	SVOC low-level method blank analyzed on 3/23/04 at 15:31 had a reported detection of di-n-butyl phthalate (0.28010 ug/L). Samples MW-9-1SA04, FB-031504-1SA04, MW-
	11A-1SA04, MW-11B-1SA0, MW-10B-1SA04, MW-10BD-1SA04, MW-7-1SA04, P-10-1SA04, P-10D-1SA04, MW-8-1SA04 and MW-5-1SA04 had detections of di-n-butyl
	phthalate less than 10X the method blank concentration, and were qualified as Not Detected (U) for di-n-butyl phthalate, because of method blank contamination.
	The field blank (FB-031504-1SA04) was reported as detected for di-n-butyl phthalate (0.000514 mg/L). Samples MW-9-1SA04, MW-11A-1SA04, MW-11B-1SA0, MW-10B-

1SA04, MW-10BD-1SA04, MW-7-1SA04, P-10-1SA04, P-10D-1SA04, MW-8-1SA04 and MW-5-1SA04 had detections of di-n-butyl phthalate less than 10X the field blank concentration, and were qualified as Not Detected (U) for di-n-butyl phthalate, because of field blank contamination. One trip blank (TB01-1SA04) was received by the laboratory, and was reported as Not Detected for VOCs. Surrogate Recoveries Surrogate recoveries for VOC and SVOC SIM analyses were within laboratory acceptance criteria. SVOC low-level analysis had elevated surrogate 2,4,6-tribromophenol recovery for samples MW-4-1SA04, MW-11B-1SA04 and MW-7-1SA04. The other five surrogates were within acceptance limits, so qualification of the data was not necessary. Sample P-10D-1SA04 20X dilution had low surrogate recoveries. Since the surrogates were diluted out of the sample, qualification of the data was not necessary. **Internal Standards** According to the LRC, VOC and SVOC internal standard areas were within SW-846 method acceptance criteria. Laboratory Control Samples VOC and SVOC LCS recoveries met the laboratory-defined acceptable ranges. Matrix Spike/Matrix Spike Duplicates VOC and SVOC low level MS/MSD recoveries were within laboratory-supplied acceptance criteria. SVOC SIM MS/MSD was analyzed from sample MW-11B-1SA04. The SVOC SIM MS/MSD had elevated recovery for pentachlorophenol. The associated samples were reported as Not Detected for pentachlorophenol, so qualification of the data was not necessary. Field Precision Two field duplicate samples were collected during this sampling event. Sample MW-10B-1SA04 and duplicate MW-10BD-1SA04 were reported as detected or estimated detected (J flagged) for 12 common compounds. MW-10B-1SA04 was also

acenaphthene, acenaphthylene, anthracene, bis(2-ethylhexyl)phthalate, dibenzofuran,

reported as detected for 2-methylnaphthalene. The 12 compounds (benzene,

di-n-butyl phthalate, fluoranthene, fluorene, naphthalene, phenanthrene and pyrene) had RPD less than 20% and were within acceptance criteria.

Sample P-10-1SA04 and duplicate P-10D-1SA04 were reported as estimated detected (J flagged) for di-n-butyl phthalate. Di-n-butyl phthalate had RPD less than 20% and was within acceptance criteria. P-10D-1SA04 was also reported as detected for 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, dibenzofuran, fluoranthene, fluorene, naphthalene, phenanthrene and pyrene. The sample/duplicate precision calculation could not be completed on the ten compounds listed because they were reported as Not Detected in both the sample and the duplicate sample. The ten compounds listed were qualified as Estimated (J) in sample P-10D-1SA04 and qualified as Not Detected and Estimated (UJ) in sample P-10-1SA04, because of the difference in results between the sample and duplicate.

Sample/duplicate precision calculations are included in Table 4.

Field Procedures

The samples were collected using documented sampling procedures.

Summary

Ground water analytical data are useable for the purpose of delineation of VOCs and SVOCs in the area of the former Houston Wood Preserving Works site. The data user is advised that samples MW-9-1SA04, FB-031504-1SA04, MW-11A-1SA04, MW-11B-1SA0, MW-10B-1SA04, MW-10BD-1SA04, MW-7-1SA04, P-10-1SA04, P-10D-1SA04, MW-8-1SA04 and MW-5-1SA04 were qualified as Not Detected (U) for di-n-butyl phthalate, because of method blank contamination.

Samples P-10-1SA04 and P-10D-1SA04 were qualified as estimated (J) for detections and qualified as Not Detected estimated (UJ) for compounds reported as Not Detected for 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, dibenzofuran, fluoranthene, fluorene, naphthalene, phenanthrene and pyrene, because of sample/duplicate precision outside acceptance criteria.

TABLE 1

Analytical Methods and Quality Objectives for Ground Water Laboratory Package 270409

Houston Wood Preserving Works Union Pacific Railroad

Analyte(s)	Method Reference	Method Number	Method Description	Quality Control Type	Quality Objective
SVOC	SW-846	8270	GC/MS	Method Blank LCS MS/MSD MS/MSD RPD Surrogates	<mql Variable* Variable* Variable* Variable*</mql
VOC	SW-846	8260	GC/MS	Method Blank LCS MS/MSD MS/MSD RPD Surrogates	<mql Variable* Variable* Variable* Variable*</mql

NOTE:

^{* =} Lab quality control limits vary for each compound.

TABLE 2

Cross-Reference Field Sample Identifications and Laboratory Identifications
Laboratory Package 270409

Houston Wood Preserving Works Union Pacific Railroad

Field Identification	Laboratory Identification
MW-9-1SA04	270409-1
FB-031504-1SA04	270409-2
MW-4-1SA04	270409-3
MW-11A-1SA05	270409-4
MW-11B-1SA06	270409-5
MW-10B-1SA07	270409-6
MW-10BD-1SA08	270409-7
TB01-1SA04	270409-8
MW-10A-1SA04	270409-9
MW-7-1SA04	270409-10
P-10-1SA04	270409-11
P-10D-1SA04	270409-12
MW-8-1SA04	270409-13
MW-5-1SA04	270409-14

J	
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٠.	TABLE 3
1	Qualified Analytical Data
J	Laboratory Package 270409
]	Houston Wood Preserving Works Union Pacific Railroad

Π	Field Identification	Analyte	Qualification	Reason for Qualification
U	MW-9-1SA04	di-n-butyl phthalate	U	method blank contamination
	FB-031504-1SA04	di-n-butyl phthalate	Ü	method blank contamination
n	MW-11A-1SA05	di-n-butyl phthalate	Ü	method blank contamination
} }	MW-117-107-05 MW-11B-1SA06	di-n-butyl phthalate	ŭ	method blank contamination
	MW-11B-16A07	di-n-butyl phthalate	ŭ	method blank contamination
	MW-10B-13A07 MW-10BD-1SA08	di-n-butyl phthalate	Ü	method blank contamination
11	MW-7-1SA04	di-n-butyl phthalate	ŭ	method blank contamination
U	P-10-1SA04	di-n-butyl phthalate	ű	method blank contamination
	P-10D-1SA04	di-n-butyl phthalate	Ü	method blank contamination
П	MW-8-1SA04	di-n-butyl phthalate	Ü	method blank contamination
П	MW-5-1SA04	di-n-butyl phthalate	Ü	method blank contamination
•		a 5a.y. pa.a.s	•	monoc Diamic Comamaio
0	MW-9-1SA04	di-n-butyl phthalate	U	field blank contamination
	MW-11A-1SA05	di-n-butyl phthalate	U	field blank contamination
U	MW-11B-1SA06	di-n-butyl phthalate	U	field blank contamination
	MW-10B-1SA07	di-n-butyl phthalate	U	field blank contamination
П	MW-10BD-1SA08	di-n-butyl phthalate	U	field blank contamination
	MW-7 - 1SA04	di-n-butyl phthalate	U	field blank contamination
_	P-10-1SA04	di-n-butyl phthalate	U	field blank contamination
_	P-10D-1SA04	di-n-butyl phthalate	U	field blank contamination
	MW-8-1SA04	di-n-butyl phthalate	U	field blank contamination
U	MW-5-1SA04	di-n-butyl phthalate	U	field blank contamination
n	P-10-1SA04	2-methylnaphthalene	UJ	sample/duplicate precision outside criteria
	P-10-1SA04	acenaphthene	ÚJ	sample/duplicate precision outside criteria
u	P-10-1SA04	acenaphthylene	ÜĴ	sample/duplicate precision outside criteria
	P-10-1SA04	anthracene	UĴ	sample/duplicate precision outside criteria
n	P-10-1SA04	dibenzofuran	UJ	sample/duplicate precision outside criteria
	P-10-1SA04	fluoranthene	UJ	sample/duplicate precision outside criteria
<u> </u>	P-10-1SA04	fluorene	UJ	sample/duplicate precision outside criteria
	P-10-1SA04	naphthalene	UJ	sample/duplicate precision outside criteria
	P-10-1SA04	phenanthrene	UJ	sample/duplicate precision outside criteria
u	P-10-1SA04	pyrene	UJ	sample/duplicate precision outside criteria
	D 40D 40404	O months do mail ()		and the second s
0	P-10D-1SA04	2-methylnaphthalene	J	sample/duplicate precision outside criteria
U	P-10D-1SA04	acenaphthene	J	sample/duplicate precision outside criteria
	P-10D-1SA04	acenaphthylene	J	sample/duplicate precision outside criteria
\sim	P-10D-1SA04	anthracene	J	sample/duplicate precision outside criteria
((P-10D-1SA04	dibenzofuran	J	sample/duplicate precision outside criteria
u	P-10D-1SA04	fluoranthene	J	sample/duplicate precision outside criteria
	P-10D-1SA04	fluorene	J	sample/duplicate precision outside criteria
n	P-10D-1SA04	naphthalene	J	sample/duplicate precision outside criteria
[P-10D-1SA04	pherianthrene	J	sample/duplicate precision outside criteria
-	P-10D-1SA04	pyrene	J	sample/duplicate precision outside criteria
n	,			

NOTES:

U = not-detected

J = estimated data, the reported sample concentration is approximated due to exceedance of QC requirements UJ = the analyte was analyzed for but was not detected above the reported sample quantitation limit. the associated value is an estimate and may be inaccurate or imprecise.

TABLE 4

Field Precision Laboratory Package 270409

Houston Wood Preserving Works Union Pacific Railroad

Field Identification	Analyte	Sample Result	Duplicate Result	RPD	Qualified
MW-10B-1SA04/MW-10BD-1SA04	benzene	0.00231	0.00228	1.31	Α
	acenaphthene	0.04421	0.04517	-2.15	Α
	acenaphthylene	0.000833	0.000855	-2.61	Α
	anthracene	0.002478	0.00243	1.96	Α
	bis(2-ethylhexyl)phthalate	0.000982	0.000988	-0.61	Α
	dibenzofuran	0.0171	0.01702	0.47	Α
	di-n-butyl phthalate	0.000303	0.000251	18.77	Α
	fluoranthene	0.001567	0.001681	-7.02	Α
	fluorene	0.02079	0.0213	-2.42	Α
	naphthalene	0.001853	0.001653	11.41	Α
	phenanthrene	0.008858	0.00956	-7.62	Α
	pyrene	0.000718	0.000694	3.40	Α
P-10-1SA04/P-10D-1SA04	di-n-butyl phthalate	0.000379	0.000418	-9.79	Α

NOTES:

results reported as mg/L RPD = ((SR-DR)*200)/(SR+DR) A = Acceptable data

APPENDIX C-2 Data Usability Summary Houston Wood Preserving Works Houston, Texas Environmental Resources Management (ERM) reviewed a laboratory analytical data package 270473 from Severn Trent Laboratories of Houston, Texas for the analysis of five ground water samples collected on March 17, 2004 in the area of the Union Pacific Railroad property former Houston Wood Preserving Works site. Data were reviewed to assess conformance with the requirements of the Review and Reporting of COC Concentration Data TRRP-13 (December 2002), and adherence to project data quality objectives. Purpose of Sampling Event: Continuation of on-site and off-site investigation. SW-846 8270C - Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) (low-level and Selective Ion Monitoring (SIM)) SW-846 8260B – Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry Data were reviewed and validated as described in the TRRP-13 Guidance Document and the results of the review/validation are discussed in this Data Usability Summary (DUS). The following laboratory submittals were reviewed by ERM:

Analytical data report,

(GC/MS)

Analysis requested included:

- Laboratory Review Checklist (LRC), and
- Exception Reports (ER).

The results of supporting quality control (QC) analyses are summarized in the QC section of the analytical report.

The reportable data, LRCs and ERs included in this review are attached to this DUS.

Project Data Quality Objectives for each analytical method are listed in Table 1.

Introduction

Five ground water samples were analyzed for semivolatile organic compounds (SVOCs) and volatile organic compounds (VOCs). Rinsate blanks and equipment blanks were not provided to the laboratory for analysis. One field blank was provided to the laboratory and analyzed

_	
0	for VOCs and SVOCs. One trip blank was provided to the laboratory and analyzed for VOCs only. Table 2 lists the sample identifications cross-referenced to laboratory identifications.
n	Data Review / Validation Results
u 	Analytical Results
	Qualified sample data are listed on Table 3. Not Detected results are reported as less than the value of the sample quantitation limit (SQL) as defined by TRRP. According to the LRC, some SQLs were elevated because of dilutions necessary for analysis.
IJ	
n	Preservation and Holding Times
U 7	The samples were evaluated for agreement with the chain-of-custody (COC). The samples were received in the appropriate containers and in good condition with the paperwork filled out properly. Sample receipt temperature was within the acceptance criteria of $4 + /- 2$
ე ე	degrees C. The samples were preserved in the field as specified in SW-846 Table 2-36. Samples were prepared and analyzed within holding times as specified in SW-846 Table 2-36.
	Calibrations and Tunes
	According to the LRC, initial calibration and continuing calibration data met SW-846 method requirements for VOC and SVOC analyses. The data package documents satisfactory instrument performance calibrations (GC/MS tunes) for VOC and SVOC analyses.
	Blanks
7	Method blank analyses were reported as Not Detected for SVOC SIM.
.	SVOC low-level method blank analyzed on 3/24/04 at 09:24 AM had a reported detection of
]	bis(2-ethylhexyl)phthalate (0.46517 ug/L). Samples MW-3-1SA04, MW-01A-1SA04, P-12-1SA04 and P-11-1SA04 had detections of bis(2-ethylhexyl)phthalate less than 10X the amount found in the method blank. Therefore, the four samples listed were qualified as Not Detected
7	(U) for bis(2-ethylhexyl)phthalate, because of method blank contamination.
_	VOC method blanks analyzed on 3/22/04 at 13:16 and 3/23/04 12:21 had reported detections
]	of methylene chloride (5.17618 ug/L and 4.28271 ug/L respectively). The associated samples were reported as Not Detected for methylene chloride, so qualification of the data was not necessary.
]	
-	Field blank FB-031704-1SA04 was reported as Not Detected for VOCs. The field blank had one estimated detection for di-n-butyl phthalate of 0.000361 J mg/L.). Samples MW-3-1SA04,
]	MW-2-1SA04, MW-01A-1SA04, P-12-1SA04 and P-11-1SA04 had detections of di-n-butyl phthalate less than 10X the amount found in the field blank. Therefore, the five samples listed
}	were qualified as Not Detected (U) for di-n-butyl phthalate, because of field blank contamination.

	The trip blank (TB02-1SA04) was reported as Not Detected for VOCs.
	Surrogate Recoveries
	Surrogate recoveries for ground water VOC and SVOC SIM analyses were within laboratory-defined acceptable ranges.
	SVOC low-level analysis had elevated 2,4,6-tribromophenol surrogate for sample P-11-1SA04 1X dilution. Because the other five surrogates were within acceptance limits, no qualification
	of the data was necessary.
	Internal Standards
	According to the LRC, VOC and SVOC internal standard areas were within SW-846 method acceptance criteria. Sample P-11MSD-1SA04 used as the site-specific MS/MSD, had elevated
	internal standards for SVOC low level analysis. Qualifiers were not added to the data for elevated internal standard recovery within the MS/MSD.
	SVOC low level sample MW-3-1SA04 1X dilution had all internal standards above limits. Detections of SVOCs reported at 1X dilution were qualified as estimated low (JL), because of elevated internal standards.
	SVOC SIM sample P-11-1SA04 1X dilution had all internal standards below limits. The six compounds analyzed by the SVOC SIM method were reported as Not Detected and qualified as Not Detected estimated (UJ), because of low internal standards.
	Laboratory Control Samples
	VOC and SVOC LCS recoveries met the laboratory-defined acceptable ranges.
n	Matrix Spike/Matrix Spike Duplicates
IJ	VOC MS/MSD recoveries were within laboratory-supplied acceptance criteria.
	SVOC SIM MS/MSD analyzed on samples P-11MS-1SA04 and P-11MSD-1SA04 had less than 10% MS recovery for pentachlorophenol. Samples MW-3-1SA04, MW-2-1SA04, MW-01A-
	1SA04 and P-11-1SA04 were reported as Not Detected for pentachlorophenol and were qualified as rejected (R), and sample P-12-1SA04 was reported as detected for pentachlorophenol and was qualified as estimated low (JL), because of MS recovery less than
П	10%.
	SVOC low-level MS/MSD analyzed on samples P-11MS-1SA04 and P-11MSD-1SA04 had low or elevated recovery for four compounds (acenaphthene, fluorene, naphthalene, and phenanthrene). These four compounds had a spike amount less than four times the amount in
]	the unspiked parent sample. Because the matrix effect may not have been accurately represented, qualifiers were not added to the data. This MS/MSD also had elevated recovery

-	
0	of 2-methyl-4,6-dinitrophenol. The five associated samples were reported as Not Detected for 2-methyl-4,6-dinitrophenol, so qualification of the data was not necessary.
	SVOC SIM and low level MS/MSD analyzed on sample 270487-5 from a laboratory package associated with this site was analyzed in the same group with samples from this data package. Samples from this data package were not associated with this MS/MSD.
	Field Precision
Π	A duplicate sample was not collected during this sampling event.
u ~	Field Procedures
	The samples were collected using documented sampling procedures.
	Summary
0	Ground water analytical data are useable for the purpose of delineation of VOCs and SVOCs in the area of the former Houston Wood Preserving Works site. The data user is advised that samples MW-3-1SA04, MW-01A-1SA04, P-12-1SA04 and P-11-1SA04 were qualified as Not Detected (U) for bis(2-ethylhexyl)phthalate, because of method blank contamination. Samples
0	MW-3-1SA04, MW-2-1SA04, MW-01A-1SA04, P-12-1SA04 and P-11-1SA04 were qualified as Not Detected (U) for di-n-butyl phthalate, because of field blank contamination. Detections of low level SVOCs reported at 1X dilution for sample MW-3-1SA04 were qualified as estimated
	low (JL), because of elevated internal standards.
	SVOC SIM sample P-11-1SA04 1X dilution reported the internal standards below limits. The six compounds analyzed by the SVOC SIM method were reported as Not Detected in sample P-11-1SA04 and qualified as Not Detected estimated (UJ), because of low internal standards. Samples MW-3-1SA04, MW-2-1SA04, MW-01A-1SA04 and P-11-1SA04 were qualified as
	rejected (R), and sample P-12-1SA04 was qualified as estimated low (JL) for pentachlorophenol, because of MS recovery less than 10%.
	Qualifications were added to the original data sheets by applying the most stringent qualifier assigned during the data usability process. When a compound had more than one qualifier assigned because of multiple reasons for qualification (MS/MSD, LCS, surrogates, etc.), the
	most stringent qualifier was applied to the original data sheets. For example, if benzene were assigned a J flag for calibration and a JL flag for low MS recovery during the review process, a JL flag would have been written on the original laboratory data sheets. If a compound had
	received a JH flag and a JL flag during data evaluation, a J qualifier would have been written on the original laboratory data sheets.
	, ·
-	

TABLE 1

Analytical Methods and Quality Objectives for Ground Water Laboratory Package 270473

Houston Wood Preserving Works Union Pacific Railroad

Analyte(s)	Method Reference	Method Number	Method Description	Quality Control Type	Quality Objective
SVOC	SW-846	8270	GC/MS	Method Blank	<mql< td=""></mql<>
				LCS	Variable*
				MS/MSD	Variable*
				MS/MSD RPD	Variable*
				Surrogates	Variable*
VOC	SW-846	8260	GC/MS	Method Blank	<mql< td=""></mql<>
VOC	00	0200		LCS	Variable*
				MS/MSD	Variable*
				MS/MSD RPD	Variable*
				Surrogates	Variable*

NOTE:

^{* =} Lab quality control limits vary for each compound

0					
		ABLE 2			
	Laboratory Houston Woo	Cross-Reference Field Sample Identifications and Laboratory Identifications Laboratory Package 270473 Houston Wood Preserving Works Union Pacific Railroad			
	·				
	Field Identification	Laboratory Identification			
	MW-3-1SA04 MW-2-1SA04 MW-01A-1SA04 P-12-1SA04	270473-1 270473-2 270473-3 270473-4			
Ū	P-11-1SA04 P-11MS-1SA04 P-11MSD-1SA04	270473-5 270473-6 270473-7			
	FB-031704-1SA04 TB02-1SA04	270473-8 270473-9			
	•				
0					
Π					

TABLE 3 Qualified Analytical Data Laboratory Package 270473 **Houston Wood Preserving Works** Union Pacific Railroad Field Identification Analyte Qualification Reason for Qualification MW-3-1SA04 bis(2-ethylhexyl)phthalate U method blank contamination MW-01A-1SA04 bis(2-ethylhexyl)phthalate U method blank contamination P-12-1SA04 bis(2-ethylhexyl)phthalate U method blank contamination P-11-1SA04 U bis(2-ethylhexyl)phthalate method blank contamination MW-3-1SA04 U di-n-butyl phthalate field blank contamination MW-2-1SA04 U di-n-butyl phthalate field blank contamination MW-01A-1SA04 U di-n-butyl phthalate field blank contamination P-12-1SA04 U di-n-butyl phthalate field blank contamination P-11-1SA04 di-n-butyl phthalate U field blank contamination MW-3-1SA04 acenaphthylene JL elevated internal standards MW-3-1SA04 anthracene JL elevated internal standards MW-3-1SA04 benzo(a)anthracene JL elevated internal standards MW-3-1SA04 bis(2-ethylhexyl)phthalate JL elevated internal standards MW-3-1SA04 chrysene JL elevated internal standards MW-3-1SA04 dibenzofuran JL elevated internal standards MW-3-1SA04 di-n-butyl phthalate JL elevated internal standards elevated internal standards MW-3-1SA04 fluoranthene JL MW-3-1SA04 fluorene JL elevated internal standards JL MW-3-1SA04 naphthalene elevated internal standards JL MW-3-1SA04 phenanthrene elevated internal standards MW-3-1SA04 JL elevated internal standards pyrene P-11-1SA04 1,2-diphenylhydrazine UJ Low internal standards P-11-1SA04 2.4-dinitrotoluene UJ Low internal standards UJ P-11-1SA04 2,6-dinitrotoluene Low internal standards P-11-1SA04 benzo(a)pyrene UJ Low internal standards P-11-1SA04 bis(2-chloroethoxy)methane UJ Low internal standards P-11-1SA04 UJ Low internal standards pentachlorophenol MW-3-1SA04 pentachlorophenoi R MS/MSD recovery less than 10% R MW-2-1SA04 pentachlorophenol MS/MSD recovery less than 10% MW-01A-1SA04 pentachlorophenol R MS/MSD recovery less than 10% P-12-1SA04 pentachlorophenol JL MS/MSD recovery less than 10% P-11-1SA04 pentachlorophenol R MS/MSD recovery less than 10% NOTES: U = not-detected J = estimated data, the reported sample concentration is approximated due to exceedance of QC requirements UJ = the analyte was analyzed for but was not detected above the reported sample quantitation limit. the associated value is an estimate and may be inaccurate or imprecise. L = low bias R = rejected



ANALYTICAL REPORT

JOB NUMBER: 270409

Prepared For:

ERM Southwest, Inc.- Houston 15810 Park Ten Place Suite 300 Houston, TX 77084

Attention: Chris Young

Date: 04/06/2004

Signature

Name: Sachin G. Kudchadkar

Title: Project Manager III

E-Mail:

04/07/04

Date

Severn Trent Laboratories 6310 Rothway Drive Houston, TX 77040

PHONE: (713) 690-4444

TOTAL NO. OF PAGES 71



04/06/2004

Chris Young
ERM Southwest, Inc.- Houston
15810 Park Ten Place
Suite 300
Houston, TX 77084

Reference:

Project: UPRR-HWPW-0014419/60

Project No. : 270409

Date Received : 03/17/2004

STL Job : 270409

Dear Chris Young:

Enclosed are the analytical results for your project referenced above. The following samples are included in the report.

1.	MW-9-1SA04
З.	MW-4-1SA04
5.	MW-11B-1SA04
7.	MW-10BD-1SA04
9.	MW-10A-1SA04
11	. P-10-1SA04

13. MW-8-1SA04

- 2. FB-031504-1SA04
- 4. MW-11A-1SA04
- 6. MW-10B-1SA04
- 8. TB01-1SA04
- 10. MW-7-1SA04
- 12. P-10D-1SA04
- 14. MW-5-1SA04

All holding times were met for the tests performed on these samples.

Enclosed, please find the Quality Control Summary. All quality control results for the QC batch that are applicable to the sample(s) are acceptable except as noted in the QC batch reports.

The test results in this report meet all NELAP requirements for STL Houston's NELAP accredited parameters. Any exceptions to NELAP requirements will be noted and included in a case narrative as a part of this report.

If the report is acceptable, please approve the enclosed invoice and forward it for payment.

Thank you for selecting Severn-Trent Laboratories to serve as your analytical laboratory on this project. If you have any questions concerning these results, please feel free to contact me at any time.

We look forward to working with you on future projects.

Sincerely,

Sachin G. Kudchadkar

Project Manager



Table 1

Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	EPA Sample Number	Laboratory Identification	8260B	8270C	Comment
MW-9-1SA04	MW-9-1SA04	270409-1	Х	Х	
FB-031504-1SA04	FB-031504-1SA04	270409-2	X	Х .	Field Blank
MW-4-1SA04	MW-4-1SA04	270409-3	X	· x	
MW-11A-1SA04	MW-11A-1SA04	270409-4	Х	х	
MW-11B-1SA04	MW-11B-1SA04	270409-5	Х	Х	,
MW-10B-1SA04	MW-10B-1SA04	270409-6	. X	х	
MW-10BD-1SA04	MW-10BD-1SA04	270409-7	Х	Х	
TB01-1SA04	TB01-1SA04	270409-8	Х		Trip Blank
MW-10A-1SA04	MW-10A-1SA04	270409-9	х	Х	·
MW-7-1SA04	MW-7-1SA04	270409-10	X	Х	
P-10-1SA04	P-10-1SA04	270409-11	х	х ·	
P-10D-1SA04	P-10D-1SA04	270409-12	Χ .	Х	
MW-8-1SA04	MW-8-1SA04	270409-13	X	·X	
MW-5-1SA04	MW-5-1SA04	270409-14	Х	х	

Appendix A Laboratory Data Package Cover Page

This data r	oackage	e consists of:
Q Î		s signature page, the laboratory review checklist, and the following reportable data:
Ċ.	R1	
ġ	R2	
	R3	
-		a) Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
		b) dilution factors,
		c) preparation methods,
		d) cleanup methods, and
	DΛ	e) if required for the project, tentatively identified compounds (TICs).
Ō	R4	
		a) Calculated recovery (%R), and
	. 70.5	b) The laboratory's surrogate QC limits.
Ö	R5	Test reports/summary forms for blank samples;
Ō	R6	Test reports/summary forms for laboratory control samples (LCSs) including:
		a) LCS spiking amounts,
		b) Calculated %R for each analyte, and
_		c) The laboratory's LCS QC limits.
Ō	R7	Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
		a) Samples associated with the MS/MSD clearly identified,
		b) MS/MSD spiking amounts,
		c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
		d) Calculated %Rs and relative percent differences (RPDs), and
		e) The laboratory's MS/MSD QC limits
Ċ	R8	Laboratory analytical duplicate (if applicable) recovery and precision:
		a) the amount of analyte measured in the duplicate,
		b) the calculated RPD, and
		c) the laboratory's QC limits for analytical duplicates.
Ō	R9	List of method quantitation limits (MQLs) for each analyte for each method and matrix;
Q	R10	Other problems or anomalies.
		Exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.
Release	Staten	nent: I am responsible for the release of this laboratory data package. This data package has been
		by the laboratory and is complete and technically compliant with the requirements of the methods
		ept where noted by the laboratory in the attached exception reports. By me signature below, I affirm
		t of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to
		quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and
		ation or data have been knowingly withheld that would affect the quality of the data.
		and of the day of the first that we have the second of the think
Check	if ann	licable: [] This laboratory is an in-house laboratory controlled by the person
	~ -	ng to rule. The official signing the cover page of the rule-required report (for example, the
		which these data are used is responsible for releasing this data package and is by signature
aft	ırmıng	the above release statement is true.
•		1/2/11
Norman :		Lel Cyle Laboratory Director 4/4/09
Name (P	rinted)	Signature Official Title (printed) Date
•		

Labo	orator	ry Name: STL-Houston LRC	Date: 03/22/04					
			oratory Job Number: 270409					
			<u> </u>					
			Batch Number(s): 96172-VOA					
#1	A ²	Description		Yes		_		ER#
		Chain-of-custody (C-O-C)		9657 3653	30	1884 1884 1884		135
R1	OI	Did samples meet the laboratory's standard conditions of samp			X			1
		Were all departures from standard conditions described in an e	xception report?	Х			•	İ
R2	OI	Sample and quality control (QC) identification		11/2/20	4130	7. 4	107 44	SPE
		Are all field sample ID numbers cross-referenced to the laborate	ory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the correspo	nding QC data?	X				
R3	OI	Test reports		'all'	127.1	3\$S	155	ক্রাইক
		Were all samples prepared and analyzed within holding times?		Χ				
		Other than those results < MQL, were all other raw values brace	keted by calibration standards?	Χ				
		Were calculations checked by a peer or supervisor?		Χ				
		Were all analyte identifications checked by a peer or superviso		Χ				
		Were sample quantitation limits reported for all analytes not de		Χ				
		Were all results for soil and sediment samples reported on a dr				X		<u> </u>
		Were % moisture (or solids) reported for all soil and sediment	samples?			X		
D4		If required for the project, TICs reported?	. "			X		ļ
R4	0	Surrogate recovery data		77	5,1100	2, 1.00		-3,543
		Were surrogates added prior to extraction?		X				
R5	OT	Were surrogate percent recoveries in all samples within the lab		7 a.s	κ' '			
KS	OI	Test reports/summary forms for blank samples	· ···	X	### <u></u>	.* .	April.	7.13
		Were appropriate type(s) of blanks analyzed? Were blanks analyzed at the appropriate frequency?		Ŷ				ļ
		Were method blanks taken through the entire analytical process	including properation and if	X				
		applicable, cleanup procedures?	s, including preparation and, if	^				
		Were blank concentrations < MQL?		х				
R6	OI	Laboratory control samples (LCS):		Date:	341.7	149.34	₩	Yaker
	<u> </u>	Were all COCs included in the LCS?		X				<u> </u>
		Was each LCS taken through the entire analytical procedure, in	cluding prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?		Х				
		Were LCS (and LCSD, if applicable) %Rs within the laborator	y OC limits?	Х				
		Does the detectability data document the laboratory's capabilit				X		
		to calculate the SQLs?		•				
		Was the LCSD RPD within QC limits?				X		
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data		.44°C	7.30	483	.ZX	
		Were the project/method specified analytes included in the MS	and MSD?				Х	2
		Were MS/MSD analyzed at the appropriate frequency?					X	
		Were MS (and MSD, if applicable) %Rs within the laboratory	QC limits?				X	ļ
		Were MS/MSD RPDs within laboratory QC limits?					Χ	<u> </u>
R8	OI	Analytical duplicate data		J.P.C.	2.525	2.52	41 % 4	ju 27.
		Were appropriate analytical duplicates analyzed for each matrix				Χ		
		Were analytical duplicates analyzed at the appropriate frequence				X		
	2.	Were RPDs or relative standard deviations within the laborator	y QC limits?			X		
R9	OI	Method quantitation limits (MQLs):	and data masks as 9	Ų.	177		- :	-
		Are the MQLs for each method analyte included in the laborate		X				<u> </u>
		Do the MQLs correspond to the concentration of the lowest no		X				
R10	Oī	Are unadjusted MQLs included in the laboratory data package		^				
1/10	ΟI	Other problems/anomalies Are all known problems/anomalies/special conditions noted in	this I DC and ED2	Х			<u> </u>	
		Were all necessary corrective actions performed for the reporte		Ŷ				
		Was applicable and available technology used to lower the SQ		Ŷ				
		affects on the sample results?	- manninge are madia intelletence	^				ĺ

^{1.} Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

= organic analyses; I = inorganic analyses (and general chemistry, when applicable);

^{3.} NA = Not applicable;

^{4.} NR = Not reviewed;

^{5.} ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Lab	orato	ory Name: STL-Houston LRC Da	ate: 03/22/04					
		<u> </u>	ory Job Number: 270409		,			
			tch Number(s): 96172-VOA		-			
#1				Yes	NIO	NA ³	NR⁴	ER# ⁵
		Description		res	-			
<u>S1</u>	OI	Initial calibration (ICAL)		<u> </u>	1.21	Cara in	\$ 91	fay's
		Were response factors and/or relative response factors for each analysis	te within QC limits?	X	<u> </u>			<u> </u>
		Were percent RSDs or correlation coefficient criteria met?		X				
		Was the number of standards recommended in the method used for a		X				<u> </u>
		Were all points generated between the lowest and highest standard us	sed to calculate the curve?	Χ				
	١.	Are ICAL data available for all instruments used?		X				
		Has the initial calibration curve been verified using an appropriate se		X				
S2	OI Initial and continuing calibration verification (ICCV a		nd continuing calibration		Ñ.,	127114		1. 191
		Was the CCV analyzed at the method-required frequency?	,	X				
		Were percent differences for each analyte within the method-required	I QC limits?	X				
		Was the ICAL curve verified for each analyte?		Х				
		Was the absolute value of the analyte concentration in the inorganic	CCB < MDL?			Х		
S3	O Mass spectral tuning:						무리콘	5,5.2
	Was the appropriate compound for the method used for tuning?							
		Were ion abundance data within the method-required QC limits?		X				
<u>S4</u>	o	Internal standards (IS):			- 73	7,433	3-4-9	1,000
	<u> </u>	Were IS area counts and retention times within the method-required	X	-		È	-	
S5	ΟĪ	Raw data (NELAC section 1 appendix A glossary, and section 5.1		44	\$577	\$8.5°	19th 15	.000
05	01	Were the raw data (for example, chromatograms, spectral data) review		X		V 1		
		Were data associated with manual integrations flagged on the raw data		$\frac{\hat{\mathbf{x}}}{\mathbf{x}}$				
S6	0	Dual column confirmation		- <u>-</u>	25.3	1789	377.5	(A)
-	-	Did dual column confirmation results meet the method-required QC?	,			Х		
S7		* · · · · · · · · · · · · · · · · · · ·		4.41.	الرائيون	A	िक्स	-
3/	0	Tentatively identified compounds (TICs):			3	Х	10,943	
60	7	If TICs were requested, were the mass spectra and TIC data subject to	o appropriate checks?	€296.21	F 1.00	13.72	*	
S8	1	Interference Check Sample (ICS) results:		A CAMPAN	1			izvir.
		Were percent recoveries within method QC limits?			-	X		
S9_	1	Serial dilutions, post digestion spikes, and method of standard ad		g Bert	576	#30	$N_{i}x_{i}\sim$	100
	<u> </u>	Were percent differences, recoveries, and the linearity within the QC	limits specified in the method?		<u> </u>	Χ	ļ	<u> </u>
S10	OI	Method detection limit (MDL) studies		1.1	15 V 10 V	Participal	4231	24
		Was a MDL study performed for each reported analyte?		Χ	L		<u> </u>	<u> </u>
		Is the MDL either adjusted or supported by the analysis of DCSs?	· · · · · · · · · · · · · · · · · · ·	Χ	<u> </u>			
<u>S11</u>	OI	Proficiency test reports:		1.4.	المتيد	200	2.50	, e j e .
	<u> </u>	Was the laboratory's performance acceptable on the applicable profic	iency tests or evaluation studies?	X	<u> </u>			
S12	OI	Standards documentation		3.5	- 10 -	1.7%	11.2	, ",-"
		Are all standards used in the analyses NIST-traceable or obtained fro	m other appropriate sources?	X				
S13	OI	Compound/analyte identification procedures		N1 .	120		14/54	+3.5
		Are the procedures for compound/analyte identification documented	?	Х				
S14	OI	Demonstration of analyst competency (DOC)			974	dist	25 W	
	1	Was DOC conducted consistent with NELAC Chapter 5C or ISO/IE	C 4?	X	T			Ι
		Is documentation of the analyst's competency up-to-date and on file?		X	1		T	
S15	OT	Verification/validation documentation for methods (NELAC Chap		5 .	1.0	11.12	25.3	1,5
	 ``	Are all the methods used to generate the data documented, verified, a	and validated, where applicable?	X	1	 	 	
Q1 ¢	OT		are randated, where applicable:		3.7	 	1,000	- (17.7b)
S16	IOI.	Laboratory standard operating procedures (SOPs):	· · · · · · · · · · · · · · · · · · ·	yard V	 			1
	1	Are laboratory SOPs current and on file for each method performed?	·	X	l	l	Į	Į

Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).

³ NA = Not applicable.

⁴ NR = Not Reviewed.

⁵ ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appe	~~~~ <u>~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~</u>			
Project	Name: UPRR-HWPW-0014419 60	Laboratory Job Number: 270409		
Review	er Name: AY	Prep Batch Number(s): 96172-VOA		
ER#I	DESCRIPTION			
1	The temperatures of coolers "All green of acceptance range of 2.0-6.0°C.	50" and "All green 1 of 1" received by the laboratory on 03/17/04 were below the		
2	Since no client sample was designated a	s the MS/MSD, the laboratory selected two samples from other clients.		

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Labo	orator	ry Name: STL-Houston L	RC Date: 03/31/04			_		
Proi	ect N		aboratory Job Number: 270409					*
_			rep Batch Number(s): 96166-SV					
			tep Batch Number(s): 90100-5 v	111			12124	· · ·
# ¹	A ²	Description		Yes	No			ER#
		Chain-of-custody (C-O-C)		3. A	1373	1998	ip.,	135
R1	OI	Did samples meet the laboratory's standard conditions of			Х	ļ		1
		Were all departures from standard conditions described in	an exception report?	Х	1			
R2	OI	Sample and quality control (QC) identification	•	100	Je://	3-13	- 500	-110,51
		Are all field sample ID numbers cross-referenced to the la	boratory ID numbers?	Х				
		Are all laboratory ID numbers cross-referenced to the corn	responding QC data?	X				
R3	OI	Test reports		1.00%	100	1898	: 1555 1555 1555 1555	45
		Were all samples prepared and analyzed within holding ti	mes?	Х	-			
		Other than those results < MQL, were all other raw values		Х				
		Were calculations checked by a peer or supervisor?	 	X				
		Were all analyte identifications checked by a peer or supe	rvisor?	х				
		Were sample quantitation limits reported for all analytes n		X				
		Were all results for soil and sediment samples reported on				X		
		Were % moisture (or solids) reported for all soil and sedin				$\frac{x}{x}$		
		If required for the project, TICs reported?	none sumptes.	-		$\frac{x}{x}$		
R4	0	Surrogate recovery data		17:15	200	iStel*	204	Tibs
		Were surrogates added prior to extraction?	X	34.52	*****	filmer.	1.77	
		Were surrogate percent recoveries in all samples within th	e laboratory OC limits?	<u> </u>	Х	_		2
R5	OI	Test reports/summary forms for blank samples	e laboratory Qe linius:	11111	ianu.	480	: júts	11,75
100	01	Were appropriate type(s) of blanks analyzed?		X	i i i i i i i i i i i i i i i i i i i	9764	y dy life.	449115"
	•	Were blanks analyzed at the appropriate frequency?		 \hat{x}		-		
			recognized including presention and if	X				
		Were method blanks taken through the entire analytical pr	ocess, including preparation and, if	^				
		applicable, cleanup procedures?		x				
R6	ΟĪ	Were blank concentrations < MQL?		<u>∧</u> 315±	-350	: Agai	1977	#1 h . 1
KO	OI	Laboratory control samples (LCS):	X	VALUE	1140	1917	584 W	
		Were all COCs included in the LCS?		X				
		Was each LCS taken through the entire analytical procedu	ire, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	001: 1: 0					
	• •	Were LCS (and LCSD, if applicable) %Rs within the labo		X		- 37		
		Does the detectability data document the laboratory's capa	bility to detect the COCs at the MDL			X		
		used to calculate the SQLs?	<u> </u>	-		37		
~=	O.T.	Was the LCSD RPD within QC limits?				X		
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD)		WW.	#12	37	332.1	. 38 150
		Were the project/method specified analytes included in the	e MS and MSD?	X				3
1	٠	Were MS/MSD analyzed at the appropriate frequency?		Х				
	•	Were MS (and MSD, if applicable) %Rs within the labora	tory QC limits?	X				
		Were MS/MSD RPDs within laboratory QC limits?		X				
R8	<u>oi</u>	Analytical duplicate data		A _k a.	202	(22)	,- € 311:	- 198
		Were appropriate analytical duplicates analyzed for each r		ļ		X		
		Were analytical duplicates analyzed at the appropriate free				X		
		Were RPDs or relative standard deviations within the labor	oratory QC limits?			X		
R9	OI	Method quantitation limits (MQLs):		Tage	in still	-11 ₆ [5].	JEE.	190,06
.	•	Are the MQLs for each method analyte included in the lab		X				
		Do the MQLs correspond to the concentration of the lowe		X				
[Are unadjusted MQLs included in the laboratory data pacl	kage?	X				
R10	OI	Other problems/anomalies		254	250	2500	25	4.57.5
		Are all known problems/anomalies/special conditions note		X				
		Were all necessary corrective actions performed for the re		X				
		Was applicable and available technology used to lower the	SOI to minimize the matrix interference	Х				4

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Lau	orato	ry Name: STL-Houston	LRC Date: 03/31/04					
Proj	ect N		Laboratory Job Number: 270409					
Rev	iewei	Name: LG	Prep Batch Number(s): 96166-SV			4 .		
#1		Description	Top Baten Tramset(a): 30:00 8 T	Yes	No	NA³	NR ⁴	ER#
	OI IO	Initial calibration (ICAL)		38,8	城	6786547	4555E	¥460°
31	01	Were response factors and/or relative response factors for each	h analyte within OC limite?	X	452 (8)	2000000	12729965	1 83.00
		Were percent RSDs or correlation coefficient criteria met?	in allaryte within QC limits:	$\hat{\mathbf{x}}$		ļ		┼──
		Was the number of standards recommended in the method use	ed for all analytes?	X		-		╁
		Were all points generated between the lowest and highest stan		X	<u> </u>	 .	_	╁
		Are ICAL data available for all instruments used?	daid used to calculate the curve:	X	\vdash			╁
		Has the initial calibration curve been verified using an approp	riate second source standard?	X			· -	╁
S2	OI	Initial and continuing calibration verification (ICCV and C	882	3%.>×	61 R 2	(89%)	1444	
	01	Was the CCV analyzed at the method-required frequency?	CCV) and continuing canoration	X	A	989/03/95	- April a	20,50
		Were percent differences for each analyte within the method-	required OC limits?	X		 		\vdash
		Was the ICAL curve verified for each analyte?	equired QC milits:	X	\vdash			
			mania CCD < MDI 9	<u> </u>	\vdash	х		┼
S3		Was the absolute value of the analyte concentration in the ino	rganic CCB < MDL?	460000	\$6.00	*************************************	-3/XX	l den i
33	0_	Mass spectral tuning:		30X	30 (5)	3.68300	363586	35 A
		Was the appropriate compound for the method used for tuning		X				
64	_	Were ion abundance data within the method-required QC limit	its?		1000	West Coners	C.:0000.65	10.00
S4	0	Internal standards (IS):		\$\$55.	×35	2000	333	8844
0.5	O.T.	Were IS area counts and retention times within the method-red		X	100,10000	584 5557°C		1000
S5	OI	Raw data (NELAC section 1 appendix A glossary, and section 1		286	为持续	3955	33333	12.60
		Were the raw data (for example, chromatograms, spectral data		X				├
~ -		Were data associated with manual integrations flagged on the	raw data?	X		A company		<u> </u>
S6	0	Dual column confirmation		±\$%	3505	34.30	*###	3.50
		Did dual column confirmation results meet the method-require	ed QC?	ļ		Х	<u> </u>	<u> </u>
<u>S7</u>	0_	Tentatively identified compounds (TICs):		3,3	100	298 0	- 15 AM	3 33
		If TICs were requested, were the mass spectra and TIC data su	bject to appropriate checks?	<u> </u>		Х		
S8	I	Interference Check Sample (ICS) results:		*34	Atr.		W. 188	V)50
		Were percent recoveries within method QC limits?		<u> </u>	<u> </u>	X		
S9	I	Serial dilutions, post digestion spikes, and method of stand		200	36500	730 C	1932	14K39
		Were percent differences, recoveries, and the linearity within	the QC limits specified in the method?			X		
S10	OI	Method detection limit (MDL) studies		Sept.		\$ 18 m	W15	1.00
		Was a MDL study performed for each reported analyte?		X				
		Is the MDL either adjusted or supported by the analysis of DC	CSs?	X				
S11	OI	Proficiency test reports:		·教教。	20.00	Herric	2883	10092
		Was the laboratory's performance acceptable on the applicable	proficiency tests or evaluation studies?	X				<u> </u>
S12	OI	Standards documentation				**	£2000	25.55
		Are all standards used in the analyses NIST-traceable or obtai	ned from other appropriate sources?	X				
S13	OI	Compound/analyte identification procedures		×4.	1848 F	16(2)A	(学等)	192
		Are the procedures for compound/analyte identification docur	nented?	X				
S14	OI	Demonstration of analyst competency (DOC)		234	120 Ac.	*2000	3000	×54.5
		Was DOC conducted consistent with NELAC Chapter 5C or I	ISO/IEC 4?	Х				
	L	Is documentation of the analyst's competency up-to-date and		X				
S15	OI	Verification/validation documentation for methods (NELA		Q\$£	,2825.	(A)	355	\$25°N
		Are all the methods used to generate the data documented, ver		Х				
S16	OI	Laboratory standard operating procedures (SOPs):	***	232	3,000	3888	35.3%	Store

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Laborat	ory Name: STL-Houston	LRC Date: 03/31/04							
Project	Name: UPRR-HWPW-0014419 60	Laboratory Job Number: 270409							
Review	er Name: LG	Prep Batch Number(s): 96166-SV							
ER#1	DESCRIPTION								
1	The temperatures of coolers "All green 60" acceptance range of 2.0-6.0°C.	" and "All green 1 of 1" received by the laboratory on 03/17/04 were below the							
2	The 2,4,6-tribromophenol surrogate recover	ries in samples 270409-3, 4MS, 5, 10 and the LCS were above acceptance limits.							
	These high recoveries will not affect the	quality of the reported results. The 2,4,6-tribromophenol and 2-fluorobipheny							
	surrogate recoveries in sample 270409-12 were below acceptance limits due to the dilution necessary for analysis.								
3	Since no client sample was designated as th	e MS/MSD, the laboratory selected sample 270409-4.							
4	The acenapthene and naphthalene SQLs in	sample 270409-12 were elevated due to the dilutions necessary for analyses.							
4		sample 270409-12 were elevated due to the dilutions necessary for analyse							

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Labo	oratoi	ry Name: STL-Houston LR	.C Date: 03/31/04					
Proi	ect N	ame: UPRR-HWPW-0014419 60 Lab	boratory Job Number: 270409					
			p Batch Number(s): 96167-SV SIM					
#1		Description	p Bateli (vainbel(3), 90107-3 v Blivi	Yes	No	NA ³	ND4	ER#
tt .	Α.		14-044					
		Chain-of-custody (C-O-C)	1 130		100			474
R1	OI	Did samples meet the laboratory's standard conditions of sa			X			1
		Were all departures from standard conditions described in a	an exception report?	Х				
R2	OI	Sample and quality control (QC) identification	<u> </u>	389	- Ray	3956	1550	5,35
		Are all field sample ID numbers cross-referenced to the lab		X	<u> </u>			
D2	<u> </u>	Are all laboratory ID numbers cross-referenced to the corre	sponding QC data?	X			10000	1. 211
R3	OI	Test reports	<u> </u>	755	.en	(8)X	125	100
		Were all samples prepared and analyzed within holding tim		X			·	
		Other than those results < MQL, were all other raw values by	bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	0	X		<u> </u>		-
		Were all analyte identifications checked by a peer or superv Were sample quantitation limits reported for all analytes no		X		 		
	*.					х		<u> </u>
		Were all results for soil and sediment samples reported on a Were % moisture (or solids) reported for all soil and sediment		<u> </u>		X		—
		If required for the project, TICs reported?	ent samples?	-		X		··
R4	0	Surrogate recovery data		-34	1200	7	254 a. N	i a mji
-	. .	Were surrogates added prior to extraction?		X		- C\$77.	. 35Mm:	
		Were surrogate percent recoveries in all samples within the	Jahoratory OC limits?	X				· · · ·
R.5	OI	Test reports/summary forms for blank samples	laboratory QC limits:	SIR	1888	(3) K 3 (-	2771	- 5,234
	-	Were appropriate type(s) of blanks analyzed?		X			,,	
		Were blanks analyzed at the appropriate frequency?	······································	X				
		Were method blanks taken through the entire analytical pro-	cess, including preparation and, if	X		_		
		applicable, cleanup procedures?	eoos, moraama proparation and, in					
		Were blank concentrations < MQL?		Х				
R6	OI	Laboratory control samples (LCS):		Hhi	1873	£38461	SER	3485
		Were all COCs included in the LCS?		Х				
		Was each LCS taken through the entire analytical procedure	e, including prep and cleanup steps?	Х				
		Were LCSs analyzed at the required frequency?		Х				
		Were LCS (and LCSD, if applicable) %Rs within the labora	atory QC limits?			Х		
		Does the detectability data document the laboratory's capab	ility to detect the COCs at the MDL			X		
		used to calculate the SQLs?	•					
		Was the LCSD RPD within QC limits?				Х		L
₹7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) da			13/11.	1836	7815	TO HE
		Were the project/method specified analytes included in the	MS and MSD?	X				2
		Were MS/MSD analyzed at the appropriate frequency?		X				
		Were MS (and MSD, if applicable) %Rs within the laborate	ory QC limits?		Х		- 1	3
		Were MS/MSD RPDs within laboratory QC limits?		X	20.000			
₹8	OI	Analytical duplicate data		25E.	1,51	執政	110	3173
		Were appropriate analytical duplicates analyzed for each ma			'	X		ļ
		Were analytical duplicates analyzed at the appropriate frequ				X		
		Were RPDs or relative standard deviations within the labora	atory QC limits?	, i		X		
39	OI	Method quantitation limits (MQLs):	untame data madrana?	₩ •	3235	cen.		1883
		Are the MQLs for each method analyte included in the labo		X				
		Do the MQLs correspond to the concentration of the lowest		X				
,,,	Oĭ	Are unadjusted MQLs included in the laboratory data packa	1gc:	X American	36-3	2°00	435	8.00
₹10	UI	Other problems/anomalies	Lin this LDC and ED?	х	Jakkin.	47 (P)	48.0	1.18
		Are all known problems/anomalies/special conditions noted		X				
		Were all necessary corrective actions performed for the repo Was applicable and available technology used to lower the		$\frac{\lambda}{X}$	\vdash	\vdash		
		affects on the sample results?	20 TO HUMBING THE HISTORY INTERFERENCE	^				

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Ap	pen	dix A (cont'd): Laboratory Review Checklist:	Reportable Data					
Lab	orato	ry Name: STL-Houston LRC	Date: 03/31/04	-				-
Proj	ect N	Vame: UPRR-HWPW-0014419 60 Labo	oratory Job Number: 270409					
Rev	iewe	r Name: LG Prep	Batch Number(s): 96167-SV SIM					
#1	A ²	Description	***	Yes	No	NA ³	NR ⁴	ER#5
	OI	Initial calibration (ICAL)		33.4	1940	255 C.	+3×19	934
~-		Were response factors and/or relative response factors for each an	alyte within OC limits?	X	-		7, 7.7	
		Were percent RSDs or correlation coefficient criteria met?	aryto within QO minto.	X			-	
		Was the number of standards recommended in the method used for	or all analytes?	X				
		Were all points generated between the lowest and highest standard		X				
		Are ICAL data available for all instruments used?		X	_			
		Has the initial calibration curve been verified using an appropriate	second source standard?	X	_			
S2					Y.W.	146.63	A No. of London	- K2:
-	01	Was the CCV analyzed at the method-required frequency?	X		- 16831.16	367.75	,	
	Was the GGV analyzed at the include required required Pequired QC limits?							
		Was the ICAL curve verified for each analyte?	neu QC mints:	X				
		Was the absolute value of the analyte concentration in the inorgan	vic CCR < MDI 2		-	х	-	├
S3	0	Mass spectral tuning:	IIC CCB < MDL:	18000	28 42	A (1)	- SSR	110(3.2)
-	_	Was the appropriate compound for the method used for tuning?		Х	27.28.7082.0	198.4.6	200	1.12.20
								-
S4	0	Were ion abundance data within the method-required QC limits?	X	3,45	Street.	1 61 2 3650	556.35	
34	0	Internal standards (IS):	-1001::4-9		J. # 15-0	- 30 2 2 X	では単位	29(3)
65	0.1	Were IS area counts and retention times within the method-requir		X	1 500 900	a. 5.1	•	
S5	OI	Raw data (NELAC section 1 appendix A glossary, and section		.¥∵	(A) (A)	18,767	المرباطية	14(1)64(3
		Were the raw data (for example, chromatograms, spectral data) re		X				
26	_	Were data associated with manual integrations flagged on the raw	data?	X				-
S6	0	Dual column confirmation		100		27000	-38%	0-10-14-7
		Did dual column confirmation results meet the method-required (įC?	7.1	ļ	X		ļ
S7	0	Tentatively identified compounds (TICs):		735	110	35524	41794	P. 10.8
		If TICs were requested, were the mass spectra and TIC data subje	ct to appropriate checks?			X		<u> </u>
S8	1	Interference Check Sample (ICS) results:) 13	40	1882	Jag arge	243.8
		Were percent recoveries within method QC limits?				Х		ļ
S9	1	Serial dilutions, post digestion spikes, and method of standard		. See	1,825	1332	-335	~**\$X.
		Were percent differences, recoveries, and the linearity within the	QC limits specified in the method?			X		<u> </u>
S10	OI	Method detection limit (MDL) studies		1884	38	\$5.8X	38(38)	1.35.27
		Was a MDL study performed for each reported analyte?		X	`			<u> </u>
		Is the MDL either adjusted or supported by the analysis of DCSs?		Х				<u> </u>
S11	OI	Proficiency test reports:		\$1.00° j.	W.	*6536	P. Salah	1.3
		Was the laboratory's performance acceptable on the applicable pro-	oficiency tests or evaluation studies?	X				
S12	OI	Standards documentation		Tim	12.75	14/10/24	2000	323%
		Are all standards used in the analyses NIST-traceable or obtained	from other appropriate sources?	Х				<u> </u>
S13	OI	Compound/analyte identification procedures		orgni	1833	-331833	1583.7	J. 98
		Are the procedures for compound/analyte identification documen	ted?	Х				
S14	OI	Demonstration of analyst competency (DOC)		OSED.	495%	:52%S	479160	ं देती
		Was DOC conducted consistent with NELAC Chapter 5C or ISO		Х				
		Is documentation of the analyst's competency up-to-date and on f		Х				
S15	OI	Verification/validation documentation for methods (NELAC C	hap 5 or ISO/IEC 17025 Section 5)	1.20	14	4.模型数	3,25%	3.3
-		Are all the methods used to generate the data documented, verifie	d, and validated, where applicable?	Х				
S16	OI	Laboratory standard operating procedures (SOPs):					100 Mg	11 130
		Are laboratory SOPs current and on file for each method perform	10	X	3,000	MAN.		

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² 3

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Apper	ndix A (cont'd): Laboratory Review Che	cklist: Exception Reports							
Laborat	ory Name: STL-Houston	LRC Date: 03/31/04							
Project	Name: UPRR-HWPW-0014419 60	Laboratory Job Number: 270409							
Review	er Name: LG	Prep Batch Number(s): 96167-SV SIM							
ER#1	DESCRIPTION								
1	The temperatures of coolers "All green 60" a acceptance range of 2.0-6.0°C.	and "All green 1 of 1" received by the laboratory on 03/17/04 were below the							
2	Since no client sample was designated as the M	MS/MSD, the laboratory selected sample 270409-5.							
3	The pentachlorophenol recoveries in the MS/MSD were above acceptance limits due to matrix interference.								

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)





CHAIN OF CUSTODY RECORD

			. CHAIN	OF C	င္ ပ ဧ ——	STODY	REC	CORD											
Cus	tomer, Information	n (1)	Pro	oject	t (5)	lnforr	nati	on 🦾	Supplied St.	A 'ì	nalys	is/N	1 e t h	od) No	ı. <u>52</u> 1	16-3		
PO (C.)	726270		PROJECT NAME	990004	484/H	WPN			A B	1 020	60 70LL						_		
wo i jêr bê ji bi		,	LAB NUMBER		BOTTLE ORDER					827	70SIM								
COMPANY			BILL TO A COMPANY	Union	Paci	fic Railro	ad		D E F		1.9/ 70	nn data							
SEND REPORT TO	Chris Young	,	INVOICE ATTN	Geoff	off Reeder F Level 2/ TRRP data package						•				1,				
ADDRESS	15810 Park Ten Place		ADDRESS	24125	Aldir	ne Westfie	ld Road	3											
									K										į.
								M N											
CITY/STATE/ZIP	Houston, TX 77084		CITY/STATE/ZIP	Spring	y, TX	77373-901	5		N										
PHONE	281-600-1000		PHONE	281-35	50-719	97			Q										
FAX	281-600-1001		FAX	281-35	0-736	62			s		-								
	IPLE DESCRIPTION		PRESI	ERVE 🎉	. F	SAMPLE MA	ATRIX	SAMPLE DAT	E SAMPLE	TIME	# CONTAINE	RABC	DEF	GH	IJΚ	LM	101	PQF	s
	MW-9-15ADY		Na,5,03	3, KL		Water		3/15/04	1410	0	7	XXX							
2 .	FB-031504 - 15A	0 4				Water		3115/04	135	-0	7	XXX							
3 .	MW-4-15A04					Water		3116/04	09	69	7	MXX							
4	MW-11A-15A04	4				Water		3/6/04		02	7	XXX							
5 .	MW-11B-ISAP	М				Water		3/16/04		so	7	XXX	,						
Ó .	mw-10B- ISA6					Water	•	3)16/04	1 423	3€/3/	2 7	VXX	1				\prod		
, the same of the	mw-10BD-154	404				Water	١	3/16/09	/ /3	20	ヲ	XXX	1				\prod		\perp
8 .	TBOI - ISAR		· H	166		Water	,			_	9	X							
Sampler: And		7	Method:				Airbil	II No.:				Requi	red Tur	nAroı	und:	14 1	Days		
Relinquished By:			2. Relinquished By:		m			Date 317		lelinquish	ned By:						D	Date	
Company Name:						R		Time		npany Na	ame:							Time	
1. Received By:	Nu	Date				Received	Ву:						D	Date					
Company Name:	5TL	Time	Company Name:					Time	Com	npany Na	ame:						Т	Time	
evern Trent Labo	oratories 6310 Rothway Drive	Houston,	TX 77040 (713)	3) 690-444	144														



CHAIN OF CUSTODY RECORD

Cus	tomer Information			Pro	ject.	Info	rmat	ion			Αn	aly	sis	/ M ·	eth	100	t	No. 5	7216-	-4	
PO POST	726270		PROJECT NA	ME -	99000484	/HWPW				A B	8260 82701										
wo	422-102/10		LAB NUMBER	٠, :		В	OTTLE OR	DER -		С	82705	ĪM				•					
COMPANY	ERM Southwest, Inc Houston		BILL TO		Union Pa	cific Rail	road		. 	E	_ D										
SEND REPORT TO	Chris Young		INVOICE ATT	ΓN	Geoff Re	eder			,	G	revel	2) IK	nr uai	a pa	ckay	U					
ADDRESS	15810 Park Ten Place		ADDRESS		24125 Al	dine Westf	ield Road	1													
	Suite 300								-	K K											
										— Н											
CITY/STATE/ZIP	Houston, TX 77084		CITY/STATE	/ZIP	Spring,	TX 77373-9	015														
PHONE	281-600-1000		PHONE	, iiva	281-350-	7197		-													
FAX	281-600-1001		FAX		281-350-	7362				R							•				
SAMP NO. SAMI	PLE DESCRIPTION			PRESE	ERVE : 1	SAMPLE	MATRIX	SAMI	PLE DATE	SAMPLE 1	TIME #	CONTAIN	ER A E	CC	EF	GΗ	ΙJ	КL	M N	O P (a R S
	mw-10A-1SAR	94		MISS	9,114	Water		3	16/04	142	5	7	XV	权			T				
2 .	MW-7-15004					Water			1 '	0910		`1 · ·	X	W.	П				77	П	
3 .	P-10-15A04					Water			1	1010	,	1. ;	$\langle \rangle$	M			П				
4 .	P-100-15A04	,				Water			ù.	1035	_	7	X)	X	\sqcap		Į.				
5 .	MW-8-15004	•				Water			~ \	1315		1	$\langle \chi \rangle$	X ,		Ħ					
6	MW-5-15A04				,	Water		,	*	1449	5	1	X	X ,			Ш				
7				············		Water						_ 			\sqcap	\sqcap	Ħ				
8 C1 .						Water				-					T	П	П			\top	\Box
Sampler: ANDY	TRAM TODOS John	Shipment I	Method: 200	シレノハ	ودع		Airbi	11 11	No.:		·		Re	quire	d Tu	rnArd	ound	1	4 Day	s/28	
Relinquished By		Pate /34	2. Relinquishe	d By:	(he				Date 417-04	3. Rel	inquishe	d By:	-!							Date	
Company Name:	Blen-sw	Time (630	Company Nan	ne:	572				Time		any Nar	ne:			,					Time	
1. Received By:	Ay	3-17-04	2. Received B	y: :					Date	3. Re	ceived B	y:	-							Date	
Company Name:	ST	Time OO's	Company Nan	ne:	•			-	Time	Comp	any Nar	ne:								Time	

evern Trent Laboratories

i

6310 Rothway Drive

Houston, TX 77040

(713) 690-4444

1

rpjsckl Jo	b Sample Receipt Checklist Report		va
Job Number.: 270409 Location.: 57216 C Customer Job ID: Project Number.: 99000484 Project Descript Customer: ERM Southwest, Inc Housto			the Report: 03/18/2004 Manager: sgk
Questions ?	(Y/N) Comments		
Chain of Custody Received?	Y		
If "yes", completed properly?	Y		
Custody seal on shipping container?	Y		
If "yes", custody seal intact?	Y		•
Custody seals on sample containers?	N		
If "yes", custody seal intact?	•••••		
Samples chilled?	Y		
Temperature of cooler acceptable? (4 deg C +	/- 2). Y 2.6,3.1,1.9,2.9,1.7		
If "no", is sample an air matrix?(no temp	req.)		
Thermometer ID	Y 368	: .	
Samples received intact (good condition)?	Y	•	
Volatile samples acceptable? (no headspace).	Y		
Correct containers used?	Y TROUGLAND		
Adequate sample volume provided?	10/8/18/04		
Samples preserved correctly?	Y		
Samples received within holding-time?	Y		
Agreement between COC and sample labels?	Y		
Radioactivity at or below background levels?	$\Phi_{ij}(x) = e^{-ix}$ (2)		
Additional	· · · · · · · · · · · · · · · · · · ·	•	
Comments	· · · · · · · · · · · · · · · · · · ·		
Sample Custodian Signature/Date	Y EIB		
		î	

Page 1

CLIENT NAME: 5	ZRM Si	outhwest.			CHECKLIST	Ohu
PROJECT:		20/1 MAR	7 44 1 -			''' ^{''} '' '''''''''''''''''''''''''''''
DATE RECEIVED		- Los little	/ AM 11: 5		ED STAMP:	
TOTAL # COOLE		5	- a-	011111011		
TOTAL # COOLE	42 KECEIVEL	·	OOLER CHE	CKLIST		· · · · · · · · · · · · · · · · · · ·
COOLER ID	COC PRESENT (Y/N)	PRESENT INTACT (Y/N) (Y/N)	COOLER TEMP (°C)	THERM:	TEMP BLK PRESENT (Y/N)	List Sample Bottles in Each Cooler if out of Temperature
P/w [651	Y		2.6	36E	N	
R/w 361	4	В	3.1	405		
C = COOLER E	B = BOTTLES	BMM	1.9	370	V.	
SPECIFIC PROJE			*******	***************	**************************************	
	present, list det	PTABLE? Yes No No No			arked As Pre umber of VOA	served? Yes. No
PRESER		#BOTTLES	CORRECT F	Н	If N, List sa	mple ID and Corresponding pH
H2SO4 (<2)						
HNO3 (<2)						
HCL (<2) (Not VOA	Vials)					
HCL (<2) (Not VOA NaOH – Cyanide (:	>12)					
HCL (<2) (Not VOA NaOH – Cyanide (: NaOH/Zn Acetate - Other	>12) Sulfide (>9)	52	7			
HCL (<2) (Not VOA NaOH – Cyanide (: NaOH/Zn Acetate - Other	>12) Sulfide (>9)	52	7	# (OF SOIL JAR	RS:
HCL (<2) (Not VOA NaOH – Cyanide (: NaOH/Zn Acetate - Other	>12) Sulfide (>9)	INCONSISTENCIES -	Place in Job I			
HCL (<2) (Not VOA NaOH – Cyanide (: NaOH/Zn Acetate - Other	>12) Sulfide (>9)	52	Place in Job I			
HCL (<2) (Not VOA NaOH – Cyanide (: NaOH/Zn Acetate - Other	>12) Sulfide (>9)	52	Place in Job I			
HNO3 (<2) HCL (<2) (Not VOA NaOH - Cyanide (: NaOH/Zn Acetate Other # OF NEAT BOTTL	>12) Sulfide (>9) .ES:	INCONSISTENCIES -	ACTION TAK	Notes as w	vell (CTRL F-	
HCL (<2) (Not VOANAOH - Cyanide (: NaOH - Cyanide (: NaOH/Zn Acetate Other # OF NEAT BOTTL	>12) Sulfide (>9) .ES:	52	ACTION TAK	Notes as w	vell (CTRL F-	12)
HCL (<2) (Not VOANAOH - Cyanide (: NaOH - Cyanide (: NaOH/Zn Acetate Other # OF NEAT BOTTL PERSON CONTAC RESOLUTION	>12) - Sulfide (>9) .ES: TED:	INCONSISTENCIES -	ACTION TAK	Notes as w	vell (CTRL F-	12)
HCL (<2) (Not VOANAOH - Cyanide (: NaOH/Zn Acetate Other FOF NEAT BOTTL PERSON CONTAC	>12) - Sulfide (>9) .ES: TED:	INCONSISTENCIES -	ACTION TAK	Notes as w	vell (CTRL F-	12)
HCL (<2) (Not VOANAOH - Cyanide (: NaOH - Cyanide (: NaOH/Zn Acetate Other OF NEAT BOTTL PERSON CONTAC	>12) - Sulfide (>9) .ES:	INCONSISTENCIES -	ACTION TAK	Notes as w	vell (CTRL F-	12)



TRRP Laboratory Test Results

Date:

4/6/04

PROJECT: UPRR-HWPW-0014419 60 CUSTOMER: ERM Southwest, Inc.- Houston

ATTN: Chris Young

Customer Sample ID:

MW-9-1SA04

Laboratory Sample ID: 270409-001

Date/Time Sampled 3/15/04

Job Number: 270409

Sample Matrix: Water

Date/Time Received: 3/17/04

14:10 11:52

THE STATE OF THE S	XXXXX		1 3 3 4 5 5 5 9 7 7 1 1 1	The contract of the contract o	1940	Dec - Ages	THE STATE OF THE S		erke e rewa w a i	par - 14 - 14 - 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1
TEST METHOD	⊡⊹CAS#	RESULT	FLAG	MDL	MQL	SQL	of UNITS	Analysis Da	ite/Time	Batch	D.F.	Analyst
Method: SW-846 8260B, Water												
1,2-Dichloroethane	107-06-2	0.00136	U	0.00136	0.005	0.00136	mg/L	3/18/04	21:26	96172	1	ydy
Benzene	71-43-2	0.00143	U	0.00143	0.005	0.00143	mg/L	3/18/04	21:26	96172	.1	ydy
Chlorobenzene	108-90-7	0.00155	U	0.00155	0.005	0.00155	mg/L	3/18/04	21:26	96172	1	ydy
Ethylbenzene	100-41-4	0.00137	U	0.00137	0.005	0.00137	mg/L	3/18/04	21:26	96172	1	ydy
Methylene Chloride	75-09-2	0.0013	U	0.0013	0.005	0.0013	mg/L	3/18/04	21:26	96172	1	ydy
Toluene	108-88-3	0.00136	U	0.00136	0.005	0.00136	mg/L	3/18/04	21:26	96172	1	ydy
Xylenes (total)	1330-20-7	0.00441	U	0.00441	0.015	0.00441	mg/L	3/18/04	21:26	96172	1	ydy

Form I

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6310 Rothway Drive • Houston, TX 77040 • Tel: 713 690 4444 • Fax: 713 690 5646 • www.stl-inc.com



TRRP Laboratory Test Results

Date:

4/6/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270409

MW-9-1SA04

Laboratory Sample ID: 270409-001

Date/Time Sampled 3/15/04

Sample Matrix: Water

Date/Time Received: 3/17/04

14:10 11:52

	•									.*		
TEST METHOD	∴ CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis Date	/Time	Batch	D.F.	Analyst
Method: SW-846 8270C, Water												
1,2-Diphenylhydrazine	122-66-7	0.00005	U	0.00005	0.0001	0.00005	mg/L	\	8:40	96918	1,	lg1
2,4-Dimethylphenol	105-67-9	0.000116	U	0.000122	0.0005	0.000116	mg/L	3/23/04 1	8:01	96568	1,	lg1
2,4-Dinitrotoluene	121-14-2	0.000009	U	0.000009	0.0001	0.000009	mg/L	3/26/04 1	8:40	96918	1	lg1
2,6-Dinitrotoluene	606-20-2	0.000026	U	0.000027	0.0001	0.000026	mg/L	3/26/04 1	8:40	96918	1,	lg1
2-Chloronaphthalene	91-58-7	0.000076	U	0.00008	0.0005	0.000076	mg/L	3/23/04 1	8:01	96568	1.	lg1
2-Methyl-4,6-dinitrophenol	534-52-1	0.000295	U	0.00031	0.0015	0.000295	mg/L	3/23/04 1	8:01	96568	1	lg1
2-Methylnaphthalene	91-57-6	0.000067	U	0.00007	0.0005	0.000067	mg/L	3/23/04 1	8:01	96568	1	lg1
4-Nitrophenol	100-02-7	0.000285	U	0.000299	0.0015	0.000285	mg/L	3/23/04 1	8:01	96568	1	lg1
Acenaphthene	83-32-9	0.000074	U	0.000078	0.0005	0.000074	mg/L	3/23/04 1	8:01	96568	· 1	lg1
Acenaphthylene	208-96-8	0.000076	U	0.00008	0.0005	0.000076	mg/L	3/23/04 1	8:01	96568	1	lg1
Anthracene	120-12-7	0.000124	U	0.00013	0.0005	0.000124	mg/L	3/23/04 1	8:01	96568	1	lg1
Benzo(a)anthracene	56-55-3	0.000267	U	0.00028	0.0005	0.000267	mg/L	3/23/04 1	8:01	96568	1	lg1
Benzo(a)pyrene	50-32-8	0.000007	U	0.000007	0.0001	0.000007	mg/L	3/26/04 1	8:40	96918	1	lg1
bis(2-chloroethoxy)methane	111-91-1	0.000009	U	0.000009	0.0001	0.000009	mg/L	3/26/04 1	8:40	96918	1	lg1

Form I

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TRRP Laboratory Test Results

Date:

4/6/04

CUSTOMER; ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270409

MW-9-1SA04

Laboratory Sample ID: 270409-001

Date/Time Sampled 3/15/04

Sample Matrix: Water

Date/Time Received: 3/17/04

14:10 11:52

TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis Da	ite/Time	Batch	D.F.	Analyst
bis(2-ethylhexyl)phthalate	117-81-7	0.00099		0.00018	0.0005	0.000172	mg/L	3/23/04	18:01	96568	1	lgl
Chrysene	218-01-9	0.00009	Ū	0.000094	0.0005	0.00009	mg/L	3/23/04	18:01	96568	1	lgl
Dibenzofuran	132-64-9	0.000076	U	0.00008	0.0005	0.000076	mg/L	3/23/04	18:01	96568	_1	lgl
Di-n-butyl Phthalate	84-74-2	0.00033	JU	0.00015	0.0005	0.000143	mg/L	3/23/04	18:01	96568	1	lgl 4£
Fluoranthene	206-44-0	0.000093	υ	0.000098	0.0005	0.000093	mg/L	3/23/04	18:01	96568	1	lg1
Fluorene	86-73-7	0.000068	υ	0.000071	0.0005	0.000068	mg/L	3/23/04	18:01	96568	1 -	lgl
Naphthalene	91-20-3	0.000067	U	0.00007	0.0005	0.000067	mg/L	3/23/04	18:01	96568	1	lgl
Nitrobenzene	98-95-3	0.000143	U	0.00015	0.0005	0.000143	mg/L	3/23/04	18:01	96568	1	lgl
n-Nitrosodiphenylamine	86-30-6	0.00009	U	0.000094	0.0005	0.00009	mg/L	3/23/04	18:01	96568	. 1	lg1
Pentachlorophenol	87-86-5	0.000038	U	0.00004	0.0003	0.000038	mg/L	3/26/04	18:40	96918	1	lg1
Phenanthrene	85-01-8	0.000077	U	0.000081	0.0005	0.000077	mg/L	3/23/04	18:01	96568	1	lgl
Phenol	108-95-2	0.0000953	U	0.0001	0.0005	0.0000953	mg/L	3/23/04	18:01	96568	1	lg1
Pyrene	129-00-0	0.000084	U	0.000088	0.0005	0.000084	. mg/L	3/23/04	18:01	96568	1	lg1

Form I

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Date:

Batch

96172

96172

96172

96172

96172

4/6/04

D.F.

1

1

1

1

1

Analyst

ydy

ydy

ydy

ydy

ydy

ydy

ydy

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

MDL

0.00137

0.00441

MQL

0.005

0.005

0.005

0.005

ATTN: Chris Young

Customer Sample ID:

Job Number: 270409

FB-031504-1SA04

Laboratory Sample ID: 270409-002

UNITS

mg/L

mg/L

mg/L

mg/L

mg/L

Date/Time Sampled 3/15/04

Sample Matrix Field Blank

3/19/04

3/19/04

3/19/04

3/19/04

3/19/04

Analysis Date/Time

16:24

16:24

16:24

16:24

16:24

Date/Time Received: 3/17/04

13:50 11:52

TEST METHOD CAS# RESULT FLAG Method: SW-846 8260B, Water

1,2-Dichloroethane 107-06-2 0.00136 U 0.00136 71-43-2 0.00143 Benzene IJ 0.00143 Chlorobenzene 108-90-7 0.00155 IJ 0.00155

Ethylbenzene 100-41-4 0.00137 Methylene Chloride 75-09-2

108-88-3 Toluene 1330-20-7 Xylenes (total) 0.00441

0.0013 U 0.0013 0.005 0.00136 U 0.00136

U

U

0.005 0.00136 mg/L 0.015 0.00441 mg/L

SQL

0.00136

0.00143

0.00155

0.00137

0.0013

3/19/04 3/19/04

16:24 96172 16:24 96172



Job Number: 270409 Date: 4/6/04

PROJECT: UPRR-HWPW-0014419 60 CUSTOMER: ERM Southwest, Inc.- Houston ATTN: Chris Young

Customer Sample ID: FB-031504-1SA04

Laboratory Sample ID: 270409-002 Date/Time Sampled 3/15/04 13:50 Sample Matrix: Field Blank

Date/Time Received: 3/17/04 11:52

TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL .	UNITS	Analysis Da	ate/Time	Batch	D.F.	Analyst
Method: SW-846 8270C, Water												
1,2-Diphenylhydrazine	122-66-7	0.00005	U	0.00005	0.0001	0.00005	mg/L	3/26/04	19:10	96918	1	lg1
2,4-Dimethylphenol	105-67-9	0.000116	U	0.000122	0.0005	0.000116	mg/L	3/23/04	18:31	96568	1	lg1
2,4-Dinitrotoluene	121-14-2	0.000009	U	0.000009	0.0001	0.000009	mg/L	3/26/04	19:10	96918	1	lg1
2,6-Dinitrotoluene	606-20-2	0.000026	U	0.000027	0.0001	0.000026	mg/L	3/26/04	19:10	96918	1	lg1
2-Chloronaphthalene	91-58-7	0.000076	U	0.00008	0.0005	0.000076	mg/L	3/23/04	18:31	96568	1	lg1
2-Methyl-4,6-dinitrophenol	534-52-1	0.000295	U	0.00031	0.0015	0.000295	mg/L	3/23/04	18:31	96568	1	lg1
2-Methylnaphthalene	91-57-6	0.000067	U	0.00007	0.0005	0.000067	mg/L	3/23/04	18:31	96568	1	lg1
4-Nitrophenol	100-02-7	0.000285	υ	0.000299	0.0015	0.000285	mg/L	3/23/04	18:31	96568	1	lg1
Acenaphthene	83-32-9	0.000074	U	0.000078	0.0005	0.000074	mg/L	3/23/04	18:31	96568	1	lg1
Acenaphthylene	208-96-8	0.000076	U	0.00008	0.0005	0.000076	mg/L	3/23/04	18:31	96568	1	lg1
Anthracene	120-12-7	0.000124	ប	0.00013	0.0005	0.000124	mg/L	3/23/04	18:31	96568	1	lg1
Benzo(a)anthracene	56-55-3	0.000267	U	0.00028	0.0005	0.000267	mg/L	3/23/04	18:31	96568	1	lg1
Benzo(a)pyrene	50-32-8	0.000007	U	0.000007	0.0001	0.000007	mg/L	3/26/04	19:10	96918	1	lg1
bis(2-chloroethoxy)methane	111-91-1	0.000009	U	0.000009	0.0001	0.000009	mg/L	3/26/04	19:10	96918	. 1	lg1

Form I

N



Date:

4/6/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270409

FB-031504-1SA04

Laboratory Sample ID: 270409-002

Date/Time Sampled 3/15/04

Sample Matrix: Field Blank

Date/Time Received

: 3/17/04

13:50 11:52

Date/Time Received 3/1//04	11:52												
TEST METHOD	🗒 CAS # 🎎	RESULT	FLAG	MDL	MQL	⊹sQL	UNITS	Analysis Da	te/Time	Batch	D.F.	Analyst	
bis(2-ethylhexyl)phthalate	117-81-7	0.000172	U	0.00018	0.0005	0.000172	mg/L	3/23/04	18:31	96568	1	lg1	
Chrysene	218-01-9	0.00009	υ	0.000094	0.0005	0.00009	mg/L	3/23/04	18:31	96568	1.	lg1	
Dibenzofuran	132-64-9	0.000076	U	0.00008	0.0005	0.000076	mg/L	3/23/04	18:31	96568	1,	lg1	4-6
Di-n-butyl Phthalate	84-74-2	0.000514	ü	0.00015	0.0005	0.000143	mg/L	3/23/04	18:31	96568	1		BC
Fluoranthene	206-44-0	0.000093	U	0.000098	0.0005	0.000093	mg/L	3/23/04	18:31	96568	1,	lg1	
Fluorene	86-73-7	0.000068	U	0.000071	0.0005	0.000068	mg/L	3/23/04	18:31	96568	1,	lgl	
Naphthalene	91-20-3	0.000067	U	0.00007	0.0005	0.000067	mg/L	3/23/04	18:31	96568	1	lg1	
Nitrobenzene	98-95-3	0.000143	U	0.00015	0.0005	0.000143	mg/L	3/23/04	18:31	96568	1	lg1	
n-Nitrosodiphenylamine	86-30-6	0.00009	U	0.000094	0.0005	0.00009	mg/L	3/23/04	18:31	96568	1	lg1	
Pentachlorophenol	87-86-5	0.000038	U	0.00004	0.0003	0.000038	mg/L	3/26/04	19:10	96918	1	lg1	
Phenanthrene	85-01 - 8	0.000077	υ	0.000081	0.0005	0.000077	mg/L	3/23/04	18:31	96568	1	lgl	
Phenol	108-95-2	0.0000953	U	0.0001	0.0005	0.0000953	mg/L	3/23/04	18:31	96568	1	lg1	
Pyrene	129-00-0	0.000084	U	0.000088	0.0005	0.000084	mg/L	3/23/04	18:31	96568	1	lg1	

Form I

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Date:

4/6/04

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Analyst

ydy

ydy

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270409

MW-4-1SA04

9:02

11:52

Laboratory Sample ID: 270409-003

Date/Time Sampled 3/16/04

Sample Matrix: Water

Date/Time Received: 3/17/04

TEST METHOD CAS# RESULT FLAG MDL MOL SOL UNITS Analysis Date/Time Batch Method: SW-846 8260B, Water 107-06-2 0.00136 0.005 3/18/04 21:54 96172 1.2-Dichloroethane 0.00136 IJ 0.00136 mg/L 0.00143 0.005 3/18/04 71-43-2 0.00143 П 0.00143 21:54 Benzene

ydy 96172 mg/L 1 ydy 108-90-7 0.00155 0.005 Chlorobenzene 0.00155 Ħ 0.00155 mg/L 3/18/04 21:54 96172 1 ydy Ethylbenzene 100-41-4 0.00137 IJ 0.00137 0.005 0.00137 3/18/04 21:54 96172 1 mg/L ydy Methylene Chloride 75-09-2 0.0013 IJ 0.0013 0.005 0.0013 3/18/04 21:54 96172 1 mg/L ydy

Toluene Xylenes (total) 1330-20-7

108-88-3 0.00136 IJ 0.00136 0.005 IJ 0.00441 0.015 0.00441

0.00136 3/18/04 21:54 96172 mg/L 0.00441 3/18/04 21:54 96172 mg/L

Form I



Date:

4/6/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270409

MW-4-1SA04

Laboratory Sample ID: 270409-003

Date/Time Sampled 3/16/04

9:02

Sample Matrix: Water

Date/Time Received: 3/17/04

11:52

TEST METHOD CAS# RESULT **FLAG** MDL SOL UNITS Analysis Date/Time Batch DF Analyst MOL Method: SW-846 8270C, Water 19:39 96918 1,2-Diphenylhydrazine 0.00005 IJ 0.00005 0.0001 0.00005 3/26/04 1, lg1 122-66-7 mg/L 105-67-9 0.000116 H 0.000122 0.0005 0.000116 3/23/04 19:00 96568 1. 2.4-Dimethylphenol mg/L lg1 3/26/04 2.4-Dinitrotoluene 0.000009 H 0.000009 0.0001 0.000009 19:39 96918 1 121-14-2 mg/L lg1 0.0001 2.6-Dinitrotoluene 606-20-2 0.000026 IJ 0.000027 0.000026 mg/L 3/26/04 19:39 96918 1, lg1 2-Chloronaphthalene 91-58-7 0.000076 U 0.00008 0.0005 0.000076 3/23/04 19:00 96568 1 lg1 mg/L 2-Methyl-4,6-dinitrophenol 534-52-1 0.000295 IJ 0.00031 0.0015 0.000295 3/23/04 19:00 96568 1 lg1 mg/L 2-Methylnaphthalene 91-57-6 0.000067 IJ 0.00007 0.0005 0.000067 mg/L 3/23/04 19:00 96568 1 lg1 4-Nitrophenol U 0.000299 0.0015 0.000285 3/23/04 19:00 96568 1 lg1 100-02-7 0.000285 mg/L Acenaphthene 0.000074 0.0005 19:00 83-32-9 U 0.000078 0.000074 mg/L 3/23/04 96568 1 lg1 208-96-8 0.000076 II 0.00008 0.0005 0.000076 3/23/04 19:00 96568 1 lg1 Acenaphthylene mg/L 0.0005 Anthracene 120-12-7 0.00026 J 0.00013 0.000124 3/23/04 19:00 96568 1 lg1 mg/L 0.0005 0.000267 3/23/04 19:00 96568 1 56-55-3 0.000267 IJ 0.00028 mg/L lg1 Benzo(a)anthracene Benzo(a)pyrene 50-32-8 0.000007 U 0.000007 0.0001 0.000007 mg/L 3/26/04 19:39 96918 1 lg1 0.0001 3/26/04 19:39 96918 bis(2-chloroethoxy)methane 111-91-1 0.000009 U 0.000009 0.000009 mg/L lg1

Form I

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Date:

4/6/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

Chris Young

D.F.

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1

1

Batch

96568

96568

96568

96568

96568

96568

96568

19:00

19:00

19:00

Analyst

lg1

lg1

lg1

lg1

lg1

lg1

lg1

lg1

lg1

Customer Sample ID:

Job Number: 270409

MW-4-1SA04

Laboratory Sample ID: 270409-003

mg/L

mg/L

ATTN:

Date/Time Sampled 3/16/04

Sample Matrix: Water

3/23/04

3/23/04

Date/Time Received: 3/17/04

Phenanthrene

9:02 11.52

TEST METHOD CAS# RESULT Analysis Date/Time FLAG MDL MOL SOL UNITS bis(2-ethylhexyl)phthalate 117-81-7 0.001025 0.00018 0.0005 0.000172 mg/L 3/23/04 19:00 Chrysene 218-01-9 0.00009 Ħ 0.000094 0.0005 0.00009 mg/L 3/23/04 19:00 Dibenzofuran 132-64-9 0.000076 0.00008 0.0005 U 10.000076 3/23/04 19:00 mg/L 3/23/04 19:00 mg/L

Di-n-butyl Phthalate 84-74-2 0.000143 U 0.00015 0.0005 0.000143 Fluoranthene 206-44-0 0.000093 IJ 0.000098 0.0005 0.000093 Fluorene 86-73-7 0.000068 IJ 0.000071 0.0005 0.000068

0.000077

Naphthalene 91-20-3 0.000067 Ħ 0.00007 0.0005 19:00 10.000067 3/23/04 96568 mg/L 1 lg1 Nitrobenzene 98-95-3 0.000143 U 0.00015 0.0005 10.000143 3/23/04 19:00 96568 1 lg1 mg/L n-Nitrosodiphenylamine 86-30-6 0.0005 0.00009 U 0.000094 0.00009 3/23/04 19:00 96568 mg/L lg1 Pentachlorophenol 87-86-5 0.000038 IJ 0.00004 0.0003 0.000038 mg/L 3/26/04 19:39 96918 lg1

85-01-8 0.000081 0.0005 0.000077 mg/L 3/23/04 108-95-2 0.0001 0.0005 b.0000953 Phenol 0.0000953 U 3/23/04 19:00 96568 mg/L 129-00-0 П 0.000088 0.000084 0.0005 | 0.000084 3/23/04 19:00 Pyrene mg/L 96568

IJ

Page 25 Form I



Date:

4/6/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270409

MW-11A-1SA04

Laboratory Sample ID: 270409-004

Date/Time Sampled: 3/16/04

Sample Matrix: Water

Date/Time Received: 3/17/04

10:02 11:52

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TEST METHOD	∵CAS#	#RESULT /	FLAG	MDL .	MQL	SQL	UNITS	Analysis D	ate/Time	Batch	D.F.	Analyst
Method: SW-846 8260B, Water												
1,2-Dichloroethane	107-06-2	0.00136	U	0.00136	0.005	0.00136	mg/L	3/18/04	22:21	96172	1.	ydy
Benzene	71-43-2	0.00143	U	0.00143	0.005	0.00143	mg/L	3/18/04	22:21	96172	1.	ydy
Chlorobenzene	108-90-7	0.00155	U	0.00155	0.005	0.00155	mg/L	3/18/04	22:21	96172	1,	ydy
Ethylbenzene	100-41-4	0.00137	U	0.00137	0.005	0.00137	mg/L	3/18/04	22:21	96172	1.	ydy
Methylene Chloride	75-09-2	0.0013	U	0.0013	0.005	0.0013	mg/L	3/18/04	22:21	96172	1,	ydy
Toluene	108-88-3	0.00136	U	0.00136	0.005	0.00136	mg/L	3/18/04	22:21	96172	1.	ydy
Xylenes (total)	1330-20-7	0.00441	U	0.00441	0.015	0.00441	mg/L	3/18/04	22:21	96172	1	ydy

Form I



Date:

4/6/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270409

MW-11A-1SA04

Laboratory Sample ID: 270409-004

Date/Time Sampled 3/16/04

Sample Matrix Water

10:02 11:52

Date/Time Received: 3/17/04

TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis D	ate/Time	Batch	D.F.	Analys
Method: SW-846 8270C, Water												
1,2-Diphenylhydrazine	122-66-7	0.00005	U	0.00005	0.0001	0.00005	mg/L	3/26/04	20:08	96918	1	lg1
2,4-Dimethylphenol	105-67-9	0.000122	U	0.000122	0.0005	0.000122	mg/L	3/23/04	16:31	96568	1	lg1
2,4-Dinitrotoluene	121-14-2	0.000009	Ŭ	0.000009	0.0001	0.000009	mg/L	3/26/04	20:08	96918	1	lg1
2,6-Dinitrotoluene	606-20-2	0.000027	U	0.000027	0.0001	0.000027	mg/L	3/26/04	20:08	96918	1	lgl
2-Chloronaphthalene	91-58-7	0.00008	Ŭ	0.00008	0.0005	0.00008	mg/L	3/23/04	16:31	96568	1	lg1
2-Methyl-4,6-dinitrophenol	534-52-1	0.00031	U	0.00031	0.0015	0.00031	mg/L	3/23/04	16:31	96568	1	lg1
2-Methylnaphthalene	91-57-6	0.00007	U	0.00007	0.0005	0.00007	mg/L	3/23/04	16:31	96568	1	lg1
4-Nitrophenol	100-02-7	0.000299	U	0.000299	0.0015	0.000299	mg/L	3/23/04	16:31	96568	1	lg1
Acenaphthene	83-32-9	0.002777		0.000078	0.0005	0.000078	mg/L	3/23/04	16:31	96568	1	lg1
Acenaphthylene	208-96-8	0.00008	U	0.00008	0.0005	0.00008	mg/L	3/23/04	16:31	96568	1	lg1
Anthracene	120-12-7	0.000321	J	0.00013	0.0005	0.00013	mg/L	3/23/04	16:31	96568	1	lg1
Benzo(a)anthracene	56-55-3	0.00028	U	0.00028	0.0005	0.00028	mg/L	3/23/04	16:31	96568	1	lg1
Benzo(a)pyrene	50-32-8	0.000007	U	0.000007	0.0001	0.000007	mg/L	3/26/04	20:08	96918	1	lg1
bis(2-chloroethoxy)methane	111-91-1	0.000009	ָ ט	0.000009	0.0001	0.000009	mg/L	3/26/04	20:08	96918	1	lg1

Form I



Date:

4/6/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270409

MW-11A-1SA04

Laboratory Sample ID: 270409-004

Date/Time Sampled: 3/16/04

Sample Matrix Water

Date/Time Received: 3/17/04

10:02 11:52

TEST METHOD	∷, CAS#∜.	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis Dat	e/Time	Batch	D.F.	Analyst
bis(2-ethylhexyl)phthalate	117-81-7	0.001042		0.00018	0.0005	0.00018	mg/L	3/23/04	16:31	96568	1	lg1
Chrysene	218-01-9	0.000094	U	0.000094	0.0005	0.000094	mg/L	3/23/04	16:31	96568	1	lg1
Dibenzofuran	132-64-9	0.000463	J	0.00008	0.0005	0.00008	mg/L	3/23/04	16:31	96568	1	lg1
Di-n-butyl Phthalate	84-74-2	0.000521	u	0.00015	0.0005	0.00015	mg/L	3/23/04	16:31	96568	1	lg1
Fluoranthene	206-44-0	0.000394	Ј	0.000098	0.0005	0.000098	mg/L	3/23/04	16:31	96568	1,	lg1
Fluorene	86-73-7	0.000354	J	0.000071	0.0005	0.000071	mg/L	3/23/04	16:31	96568	1,	lg1
Naphthalene	91-20-3	0.002776		0.00007	0.0005	0.00007	mg/L	3/23/04	16:31	96568	1	lg1
Nitrobenzene	98-95-3	0.00015	U	0.00015	0.0005	0.00015	mg/L	3/23/04	16:31	96568	1	lg1
n-Nitrosodiphenylamine	86-30-6	0.000094	U	0.000094	0.0005	0.000094	mg/L	3/23/04	16:31	96568	1	lg1
Pentachlorophenol	87-86-5	0.00004	U	0.00004	0.0003	0.00004	mg/L	3/26/04	20:08	96918	1	lg1
Phenanthrene	85-01-8	0.000081	U	0.000081	0.0005	0.000081	mg/L	3/23/04	16:31	96568	1	lg1
Phenol	108-95-2	0.0001	U	0.0001	0.0005	0.0001	mg/L	3/23/04	16:31	96568	1	lg1
Pyrene	129-00-0	0.000088	U	0.000088	0.0005	0.000088	mg/L	3/23/04	16:31	96568	1	lg1

Form I

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Date:

4/6/04

Job Number: 270409

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

MW-11B-1SA04

Laboratory Sample ID: 270409-005

Date/Time Sampled 3/16/04

Sample Matrix Water

Date/Time Received: 3/17/04

11:52

10:50

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TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis D	ate/Time	Batch	D.F.	Analyst
Method: SW-846 8260B, Water												
1,2-Dichloroethane	107-06-2	0.00136	U	0.00136	0.005	0.00136	mg/L	3/19/04	17:18	96172	1	ydy
Benzene	71-43-2	0.00143	U	0.00143	0.005	0.00143	mg/L	3/19/04	17:18	96172	1	ydy
Chlorobenzene	108-90-7	0.00155	U	0.00155	0.005	0.00155	mg/L	3/19/04	17:18	96172	1	ydy
Ethylbenzene	100-41-4	0.00137	U	0.00137	0.005	0.00137	mg/L	3/19/04	17:18	96172	1	ydy
Methylene Chloride	75-09-2	0.0013	U	0.0013	0.005	0.0013	mg/L	3/19/04	17:18	96172	1	ydy
Toluene	108-88-3	0.00136	U	0.00136	0.005	0.00136	mg/L	3/19/04	17:18	96172	1	ydy
Xylenes (total)	1330-20-7	0.00441	U	0.00441	0.015	0.00441	mg/L	3/19/04	17:18	96172	1	ydy

Form I



Job Number: 270409 Date: 4/6/04

CUSTOMER: ERM Southwest, Inc.- Houston PROJECT: UPRR-HWPW-0014419 60 ATTN: Chris Young

Customer Sample ID: MW-11B-1SA04 Laboratory Sample ID: 270409-005

Date/Time Sampled 3/16/04 10:50 Sample Matrix Water

Date/Time Received: 3/17/04 11:52

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TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	: SQL	- UNITS	Analysis D	ate/Time	Batch	D.F.	Analyst
Method: SW-846 8270C, Water												
1,2-Diphenylhydrazine	122-66-7	0.00005	U	0.00005	0.0001	0.00005	mg/L	3/26/04	17:12	96918	1	lg1
2,4-Dimethylphenol	105-67-9	0.000122	U	0.000122	0.0005	0.000122	mg/L	3/23/04	19:31	96568	1	lg1
2,4-Dinitrotoluene	121-14-2	0.000009	U	0.000009	0.0001	0.000009	mg/L	3/26/04	17:12	96918	1	lg1
2,6-Dinitrotoluene	606-20-2	0.000027	υ	0.000027	0.0001	0.000027	mg/L	3/26/04	17:12	96918	1	lg1
2-Chloronaphthalene	91-58-7	0.00008	U	0.00008	0.0005	0.00008	mg/L	3/23/04	19:3,1	96568	1.	lg1
2-Methyl-4,6-dinitrophenol	534-52-1	0.00031	U	0.00031	0.0015	0.00031	mg/L	3/23/04	19:31	96568	1	lg1
2-Methylnaphthalene	91-57-6	0.001569	·	0.00007	0.0005	0.00007	mg/L	3/23/04	19:31	96568	1	lg1
4-Nitrophenol	100-02-7	0.000299	U	0.000299	0.0015	0.000299	mg/L	3/23/04	19:31	96568	1	lg1
Acenaphthene	83-32-9	0.0486		0.000078	0.0005	0.000078	mg/L	3/23/04	19:31	96568	1	lg1
Acenaphthylene	208-96-8	0.001163		0.00008	0.0005	0.00008	mg/L	3/23/04	19:31	96568	1	lg1
Anthracene	120-12-7	0.000854		0.00013	0.0005	0.00013	mg/L	3/23/04	19:31	96568	1	lg1
Benzo(a)anthracene	56-55-3	0.00028	U	0.00028	0.0005	0.00028	mg/L	3/23/04	19:31	96568	1	lg1
Benzo(a)pyrene	50-32-8	0.000007	υ	0.000007	0.0001	0.000007	mg/L	3/26/04	17:12	96918	1	lg1
bis(2-chloroethoxy)methane	111-91-1	0.000009	U	0.000009	0.0001	0.000009	mg/L	3/26/04	17:12	96918	1	lg1
			1 7 7 7			* 1	-	•				

CUSTOMER: ERM Southwest, Inc.- Houston

TRRP Laboratory Test Results

Date:

4/6/04

Job Number: 270409

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

MW-11B-1SA04

Laboratory Sample ID: 270409-005

Date/Time Sampled: 3/16/04

Sample Matrix: Water

Date/Time Received: 3/17/04

11:52

10:50

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TEST METHOD	CAS#35	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis Da	ite/Time	Batch	, D.F.	Analyst	:
bis(2-ethylhexyl)phthalate	117-81-7	0.00018	U	0.00018	0.0005	0.00018	mg/L	3/23/04	19:31	96568	1	lg1	
Chrysene	218-01-9	0.000094	U	0.000094	0.0005	0.000094	mg/L	3/23/04	19:31	96568	1	lg1	
Dibenzofuran	132-64-9	0.01581	-	0.00008	0.0005	0.00008	mg/L	3/23/04	19:31	96568	1	lg1	J
Di-n-butyl Phthalate	84-74-2	0.000348	JU	0.00015	0.0005	0.00015	mg/L	3/23/04	19:31	96568	1		4-0 Bb
Fluoranthene	206-44-0	0.001971		0.000098	0.0005	0.000098	mg/L	3/23/04	19:31	96568	1	lg1	
Fluorene	86-73-7	0.0112		0.000071	0.0005	0.000071	mg/L	3/23/04	19:31	96568	1	lgl	
Naphthalene	91-20-3	0.01168		0.00007	0.0005	0.00007	mg/L	3/23/04	19:31	96568	1	lg1	
Nitrobenzene	98-95-3	0.00015	υ	0.00015	0.0005	0.00015	mg/L	3/23/04	19:31	96568	1	lg1	1
n-Nitrosodiphenylamine	86-30-6	0.000094	U	0.000094	0.0005	0.000094	mg/L	3/23/04	19:31	96568	1	lg1	
Pentachlorophenol	87-86-5	0.00004	U	0.00004	0.0003	0.00004	mg/L	3/26/04	17:12	96918	1	lg1	
Phenanthrene	85-01-8	0.000198	J	0.000081	0.0005	0.000081	mg/L	3/23/04	19:31	96568	1	lg1	
Phenol	108-95-2	0.0001	U	0.0001	0.0005	0.0001	mg/L	3/23/04	19:31	96568	1	lg1	
Pyrene	129-00-0	0.000991		0.000088	0.0005	0.000088	mg/L	3/23/04	19:31	96568	1	lg1	

Form I



Date: 4/6/04

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CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270409

MW-10B-1SA04

13:10

Laboratory Sample ID: 270409-006

Date/Time Sampled 3/16/04

Sample Matrix Water

Date/Time Received: 3/17/04 11:52

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TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis Da	ite/Time	Batch	D.F.	Analyst	
Method: SW-846 8260B, Water													~
1,2-Dichloroethane	107-06-2	0.00136	U	0.00136	0.005	0.00136	mg/L	3/19/04	17:45	96172	1	ydy	٠
Benzene	71-43-2	0.00231	J	0.00143	0.005	0.00143	mg/L	3/19/04	17:45	96172	1	ydy	34
Chlorobenzene	108-90-7_	0.00155	U	0.00155	0.005	0.00155	mg/L	3/19/04	17:45	96172	1	ydy	
Ethylbenzene	100-41-4	0.00137	U	0.00137	0.005	0.00137	mg/L	3/19/04	17:45	96172	1	ydy	-
Methylene Chloride	75-09-2	0.0013	U	0.0013	0.005	0.0013	mg/L	3/19/04	17:45	96172	1	ydy	
Toluene	108-88-3	0.00136	บ	0.00136	0.005	0.00136	mg/L	3/19/04	17:45	96172	1	ydy	
Xylenes (total)	1330-20-7	0.00441	U	0.00441	0.015	0.00441	mg/L	3/19/04	17:45	96172	1	ydy	



CUSTOMER: ERM Southwest, Inc.- Houston

TRRP Laboratory Test Results

4/6/04 Date:

Job Number: 270409

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

MW-10B-1SA04

Laboratory Sample ID: 270409-006

Date/Time Sampled 3/16/04

Sample Matrix: Water

13:10

Date/Time Received: 3/17/04 11:52

						• •		·				
TEST METHOD	CAS#	RESULT	FLAG	: MDL :	MQL	SQL	UNITS	Analysis D	ate/Time	Batch	D.F.	Analyst
Method: SW-846 8270C, Water					1934 (1944) 1934 (1945)							
1,2-Diphenylhydrazine	122-66-7	0.00005	U	0.00005	0.0001	0.00005	mg/L	3/26/04	20:37	96918	1	lg1
2,4-Dimethylphenol	105-67-9	0.000116	U	0.000122	0.0005	0.000116	mg/L	3/23/04	20:00	96568	1	lg1
2,4-Dinitrotoluene	121-14-2	0.000009	U	0.000009	0.0001	0.000009	mg/L	3/26/04	20:37	96918	1	lg1
2,6-Dinitrotoluene	606-20-2	0.000026	U	0.000027	0.0001	0.000026	mg/L	3/26/04	20:37	96918	1	lg1
2-Chloronaphthalene	91-58-7	0.000076	U	0.00008	0.0005	0.000076	mg/L	3/23/04	20:00	96568	1	lg1
2-Methyl-4,6-dinitrophenol	534-52-1	0.000295	U	0.00031	0.0015	0.000295	mg/L	3/23/04	20:00	96568	1	lg1
2-Methylnaphthalene	91-57-6	0.00013	J	0.00007	0.0005	0.000067	mg/L	3/23/04	20:00	96568	1	lg1
4-Nitrophenol	100-02-7	0.000285	U	0.000299	0.0015	0.000285	mg/L	3/23/04	20:00	96568	1	lg1
Acenaphthene	83-32-9	0.04421		0.000078	0.0005	0.000074	mg/L	3/23/04	20:00	96568	1	lg1
Acenaphthylene	208-96-8	0.000833		0.00008	0.0005	0.000076	mg/L	3/23/04	20:00	96568	1	lg1
Anthracene	120-12-7	0.002478		0.00013	0.0005	0.000124	mg/L	3/23/04	20:00	96568	1	lg1
Benzo(a)anthracene	56-55-3	0.000267	ับ	0.00028	0.0005	0.000267	mg/L	3/23/04	20:00	96568	1	lg1
Benzo(a)pyrene	50-32-8	0.000007	U	0.000007	0.0001	0.000007	mg/L	3/26/04	20:37	96918	1	lg1
bis(2-chloroethoxy)methane	111-91-1	0.000009	U	0.000009	0.0001	0.000009	mg/L	3/26/04	20:37	96918	1	lg1

Form I



Date:

4/6/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270409

MW-10B-1SA04

Laboratory Sample ID: 270409-006

Date/Time Sampled 3/16/04

Sample Matrix: Water

13:10

Date/Time Received: 3/17/04 11:52

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TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis Da	ate/Time	Batch	D.F.	Analyst	
bis(2-ethylhexyl)phthalate	117-81-7	0.000982		0.00018	0.0005	0.000172	mg/L	3/23/04	20:00	96568	1	lg1	
Chrysene	218-01 - 9	0.00009	U	0.000094	0.0005	0.00009	mg/L	3/23/04	20:00	96568	1	lg1	
Dibenzofuran	132-64-9	0.0171	- '	0.00008	0.0005	0.000076	mg/L	3/23/04	20:00	96568	1	lg1	
Di-n-butyl Phthalate	84-74-2	0.000303	Ju	0.00015	0.0005	0.000143	mg/L	3/23/04	20:00	96568	1	ا lg1 د	
Fluoranthene	206-44-0	0.001567	,	0.000098	0.0005	0.000093	mg/L	3/23/04	20:00	96568	1	lg1	
Fluorene	86-73-7	0.02079		0.000071	0.0005	0.000068	mg/L	3/23/04	20:00	96568	1	lg1	
Naphthalene	91-20-3	0.001853		0.00007	0.0005	0.000067	mg/L	3/23/04	20:00	96568	1	lg1	
Nitrobenzene	98-95-3	0.000143	U	0.00015	0.0005	0.000143	mg/L	3/23/04	20:00	96568	1	lg1	
n-Nitrosodiphenylamine	86-30-6	0.00009	U	0.000094	0.0005	0.00009	mg/L	3/23/04	20:00	96568	1	lg1	
Pentachlorophenol	87-86-5	0.000038	U	0.00004	0.0003	0.000038	mg/L	3/26/04	20:37	96918	1	lg1	
Phenanthrene	85-01-8	0.008858		0.000081	0.0005	0.000077	mg/L	3/23/04	20:00	96568	1	lg1	
Phenol	108-95-2	0.0000953	U	0.0001	0.0005	0.0000953	mg/L	3/23/04	20:00	96568	1	lg1	l
Pyrene	129-00-0	0.000718		0.000088	0.0005	0.000084	mg/L	3/23/04	20:00	96568	1	lg1	

Form I



Date:

4/6/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270409

MW-10BD-1SA04

Laboratory Sample ID: 270409-007

Date/Time Sampled 3/16/04

13:20

Sample Matrix: Water

Date/Time Received: 3/17/04

11:52

*	•											
TEST METHOD	CAS#	RESULT	FLAG	MDL'-	MQL	SQL	UNITS	Analysis D	ate/Time	Batch	D.F.	Analyst
Method: SW-846 8260B, Water												
1,2-Dichloroethane	107-06-2	0.00136	U	0.00136	0.005	0.00136	mg/L	3/19/04	18:12	96172	1	ydy
Benzene	71-43-2	0.00228	J	0.00143	0.005	0.00143	mg/L	3/19/04	18:12	96172	1	ydy
Chlorobenzene	108-90-7	0.00155	U	0.00155	0.005	0.00155	mg/L	3/19/04	18:12	96172	1	ydy
Ethylbenzene	100-41-4	0.00137	U	0.00137	0.005	0.00137	mg/L	3/19/04	18:12	96172	1	ydy
Methylene Chloride	75-09-2	0.0013	U	0.0013	0.005	0.0013	mg/L	3/19/04	18:12	96172	-1	ydy
Toluene	108-88-3	0.00136	U	0.00136	0.005	0.00136	mg/L	3/19/04	18:12	96172	1	ydy
Xylenes (total)	1330-20-7	0.00441	U	0.00441	0.015	0.00441	mg/L	3/19/04	18:12	96172	1	ydy



Date:

4/6/04

1

lg1

lg1

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

Chris Young

Customer Sample ID:

Job Number: 270409

MW-10BD-1SA04

Laboratory Sample ID: 270409-007

ATTN:

Date/Time Sampled 3/16/04

Sample Matrix: Water

mg/L

mg/L

3/26/04

21:07

96918

Date/Time Received: 3/17/04

13:20 11:52

111-91-1

TEST METHOD CAS# RESULT **FLAG** MDL MOL SOL UNITS Analysis Date/Time Batch D.F. Analyst Method: SW-846 8270C, Water 122-66-7 0.00005 U 0.00005 0.0001 0.00005 3/26/04 96918 1,2-Diphenylhydrazine mg/L 21:07 lg1 2,4-Dimethylphenol 105-67-9 0.000116 U 0.000122 0.0005 0.000116 mg/L 3/23/04 20:30 96568 1 lg1 U 0.000009 0.0001 96918 2,4-Dinitrotoluene 121-14-2 0.000009 0.000009 3/26/04 mg/L 21:07 1 lg1 2,6-Dinitrotoluene 606-20-2 0.000026 U 0.000027 0.0001 0.000026 mg/L 3/26/04 21:07 96918 1 lg1 2-Chloronaphthalene 91-58-7 0.000076 U 0.00008 0.0005 0.000076 3/23/04 20:30 96568 mg/L lg1 2-Methyl-4,6-dinitrophenol 534-52-1 0.000295 U 0.00031 0.0015 0.000295 3/23/04 20:30 96568 1 mg/L lg1 91-57-6 2-Methylnaphthalene 0.000067 U 0.00007 0.0005 3/23/04 20:30 96568 0.000067 mg/L 1 lg1 100-02-7 0.000285 IJ 0.000299 0.0015 3/23/04 96568 4-Nitrophenol 0.000285 mg/L 20:30 1 lg1 Acenaphthene 83-32-9 0.04517 0.000078 0.0005 0.000074 3/23/04 20:30 96568 1 lg1 mg/L 208-96-8 0.000855 0.00008 0.0005 3/23/04 Acenaphthylene 0.000076 mg/L 20:30 96568 1 lg1 Anthracene 120-12-7 0.0005 0.00243 0.00013 0.000124 mg/L 3/23/04 20:30 96568 1 lg1 Benzo(a)anthracene 56-55-3 0.000267 U 0.00028 0.0005 0.000267 3/23/04 20:30 96568 mg/L 1 lg1 Benzo(a)pyrene 50-32-8 0.000007 IJ 0.000007 0.0001 10.000007 3/26/04 21:07 96918

Form I

bis(2-chloroethoxy)methane

Page 36

U

0.000009

0.000009

0.0001

0.000009



Date:

Batch

96568

20:30

4/6/04

D.F.

1

Analyst

lg1

lg1

CUSTOMER: ERM Southwest. Inc.- Houston

PROJECT: UPRR-HWPW-0014419.60 ATTN: Chris Young

Customer Sample ID:

Job Number: 270409

MW-10BD-1SA04

Laboratory Sample ID: 270409-007

Date/Time Sampled: 3/16/04

13:20

Sample Matrix: Water

Date/Time Received: 3/17/04

11:52

CAS# TEST METHOD RESULT Analysis Date/Time **FLAG** MDL MQL SOL -UNITS bis(2-ethylhexyl)phthalate 117-81-7 0.000988 0.00018 0.0005 0.000172 mg/L 3/23/04 Chrysene 218-01-9 0.00009 IJ 0.000094 0.0005 0.00009 mg/L

3/23/04 20:30 96568 1: lg1 Dibenzofuran 132-64-9 0.00008 0.0005 0.000076 3/23/04 20:30 96568 0.01702 lg1 mg/L Di-n-butyl Phthalate 84-74-2 0.000251 0.00015 0.0005 0.000143 20:30 96568 1 3/23/04 mg/L lg1 usu lg1

Fluoranthene 206-44-0 0.001681 0.000098 0.0005 0.000093 3/23/04 20:30 1. mg/L 96568 Fluorene 86-73-7 0.0213 0.000071 0.0005 0.000068 mg/L 3/23/04 20:30 96568 1 lg1 Naphthalene 91-20-3 0.001653 0.00007 0.0005 0.000067 3/23/04 mg/L 20:30 96568 1 lg1 0.000143 Nitrobenzene 98-95-3 0.000143 U 0.00015 0.0005 3/23/04 20:30 mg/L 96568 1

lg1 n-Nitrosodiphenylamine 86-30-6 0.00009 U 0.000094 0.0005 0.00009 3/23/04 20:30 96568 1 lg1 mg/L Pentachlorophenol 87-86-5 0.000038 U 0.00004 0.0003 0.000038 3/26/04 21:07 96918 mg/L 1 lg1 Phenanthrene 85-01-8 0.00956 0.000081 0.0005 0.000077 mg/L 3/23/04 20:30 96568 1 lg1 lg1

108-95-2 0.0000953 IJ 0.0001 0.0005 b.0000953 3/23/04 20:30 96568 1 Phenol mg/L 129-00-0 0.000694 0.000088 0.0005 0.000084 3/23/04 20:30 96568 mg/L Pyrene

Form I



Date:

4/6/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

TB01-1SA04

Laboratory Sample ID: 270409-008

Date/Time Sampled 3/16/04

Job Number: 270409

Sample Matrix: Trip Blank

Date/Time Received: 3/17/04

0:00 11:52

TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis D	ate/Time	Batch	D.F.	Analyst
Method: SW-846 8260B, Water												
1,2-Dichloroethane	107-06-2	0.00136	U	0.00136	0.005	0.00136	mg/L	3/19/04	16:51	96172	1	ydy
Benzene	71-43-2	0.00143	U	0.00143	0.005	0.00143	mg/L	3/19/04	16:51	96172	1	ydy
Chlorobenzene	108-90-7	0.00155	U	0.00155	0.005	0.00155	mg/L	3/19/04	16:51	96172	1	ydy
Ethylbenzene	100-41-4	0.00137	U	0.00137	0.005	0.00137	mg/L	3/19/04	16:51	96172	1 .	ydy
Methylene Chloride	75-09-2	0.0013	U	0.0013	0.005	0.0013	mg/L	3/19/04	16:51	96172	1	ydy
Toluene	108-88-3	0.00136	U	0.00136	0.005	0.00136	mg/L	3/19/04	16:51	96172	1	ydy
Xylenes (total)	1330-20-7	0.00441	U	0.00441	0.015	0.00441	mg/L	3/19/04	16:51	96172	1	ydy

Form I



Date:

4/6/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270409

MW-10A-1SA04

Laboratory Sample ID: 270409-009

Date/Time Sampled 3/16/04

Sample Matrix: Water

Date/Time Received: 3/17/04

14:25 11:52

TEST METHOD CAS# SOL UNITS RESULT Analysis Date/Time **FLAG** MDL MOL: Batch D.F. Analyst Method: SW-846 8260B, Water 1,2-Dichloroethane 107-06-2 0.00136 Ħ 0.00136 0.005 0.00136 mg/L 3/19/04 18:39 96172 ydy Benzene 71-43-2 0.00143 IJ 0.00143 0.005 0.00143 3/19/04 18:39 96172 mg/L 1 ydy Chlorobenzene 108-90-7 0.00155 0.005 IJ 0.00155 0.00155 3/19/04 18:39 96172 1 mg/L ydy Ethylbenzene 100-41-4 0.00137 U 0.00137 0.005 0.00137 3/19/04 18:39 96172 1 mg/L ydy Methylene Chloride 75-09-2 0.0013 U 0.0013 0.005 0.0013 3/19/04 18:39 1. mg/L 96172 ydy Toluene 108-88-3 0.00136 Ħ 0.00136 0.005 0.00136 3/19/04 18:39 96172 1 mg/L ydy Xylenes (total) 1330-20-7 0.00441 Ħ 0.00441 0.015 0.00441 3/19/04 18:39 96172 mg/L ydy



Date:

CUSTOMER: ERM Southwest, Inc.- Houston PROJECT: UPRR-HWPW-0014419 60 ATTN: Chris Young

Customer Sample ID: MW-10A-1SA04

Job Number: 270409

Laboratory Sample ID: 270409-009

4/6/04

Date/Time Sampled 3/16/04 14:25

Sample Matrix Water

Date/Time Received: 3/17/04 11:52

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TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis D	ate/lime	Batch	D.F.	Analyst
Method: SW-846 8270C, Water												
1,2-Diphenylhydrazine	122-66-7	0.00005	U	0.00005	0.0001	0.00005	mg/L	3/26/04	21:36	96918	1	lg1
2,4-Dimethylphenol	105-67-9	0.000116	U	0.000122	0.0005	0.000116	mg/L	3/23/04	21:00	96568	1	lg1
2,4-Dinitrotoluene	121-14-2	0.000009	U	0.000009	0.0001	0.000009	mg/L	3/26/04	21:36	96918	1	lg1
2,6-Dinitrotoluene	606-20-2	0.000026	U	0.000027	0.0001	0.000026	mg/L	3/26/04	21:36	96918	,1	lg1
2-Chloronaphthalene	91-58-7	0.000076	U	0.00008	0.0005	0.000076	mg/L	3/23/04	21:00	96568	1	lg1
2-Methyl-4,6-dinitrophenol	534-52-1	0.000295	U	0.00031	0.0015	0.000295	mg/L	3/23/04	21:00	96568	1	lg1
2-Methylnaphthalene	91-57-6	0.000067	U	0.00007	0.0005	0.000067	mg/L	3/23/04	21:00	96568	1	lg1
4-Nitrophenol	100-02-7	0.000285	U	0.000299	0.0015	0.000285	mg/L	3/23/04	21:00	96568	1	lg1
Acenaphthene	83-32-9	0.000074	U	0.000078	0.0005	0.000074	mg/L	3/23/04	21:00	96568	1	lg1
Acenaphthylene	208-96-8	0.000076	U	0.00008	0.0005	0.000076	mg/L	3/23/04	21:00	96568	1	lg1
Anthracene	120-12-7	0.000124	U	0.00013	0.0005	0.000124	mg/L	3/23/04	21:00	96568	1	lg1
Benzo(a)anthracene	56-55-3	0.000267	U	0.00028	0.0005	0.000267	mg/L	3/23/04	21:00	96568	1	lg1
Benzo(a)pyrene	50-32-8	0.000007	U	0.000007	0.0001	0.000007	mg/L	3/26/04	21:36	96918	1	lg1
bis(2-chloroethoxy)methane	111-91-1	0.000009	U	0.000009	0.0001	0.000009	mg/L	3/26/04	21:36	96918	1	lg1

Form I

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4/6/04 Date:

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270409

MW-10A-1SA04

14:25

Laboratory Sample ID: 270409-009

Date/Time Sampled: 3/16/04

Sample Matrix: Water

Date/Time Received: 3/17/04 11:52

							•					
TEST METHOD No. 10 10 10 10 10 10 10 10 10 10 10 10 10	CAS#5%	RESULT	FLAG	⊮ MDL ∵	MQL	SQL	// UNITS 🚜	Analysis Da	te/Time	Batch	D.F.	Analyst
bis(2-ethylhexyl)phthalate	117-81-7	0.000916		0.00018	0.0005	0.000172	mg/L	3/23/04	21:00	96568	1,	lg1
Chrysene	218-01-9	0.00009	U	0.000094	0.0005	0.00009	mg/L	3/23/04	21:00	96568	1.	lg1
Dibenzofuran	132-64-9	0.000076	U	0.00008	0.0005	0.000076	mg/L	3/23/04	21:00	96568	1.	lg1
Di-n-butyl Phthalate	84-74-2	0.000143	U	0.00015	0.0005	0.000143	mg/L	3/23/04	21:00	96568	1	lg1
Fluoranthene	206-44-0	0.000093	U	0.000098	0.0005	0.000093	mg/L	3/23/04	21:00	96568	1	lg1
Fluorene	86-73-7	0.000068	U	0.000071	0.0005	0.000068	mg/L	3/23/04	21:00	96568	1	lg1
Naphthalene	91-20-3	0.000067	U	0.00007	0.0005	0.000067	mg/L	3/23/04	21:00	96568	1,	lg1
Nitrobenzene	98-95-3	0.000143	U	0.00015	0.0005	0.000143	mg/L	3/23/04	21:00	96568	1	lg1
n-Nitrosodiphenylamine	86-30-6	0.00009	U	0.000094	0.0005	0.00009	mg/L	3/23/04	21:00	96568	1	lg1
Pentachlorophenol	87-86-5	0.000038	U	0.00004	0.0003	0.000038	mg/L	3/26/04	21:36	96918	1	lg1
Phenanthrene	85-01-8	0.000077	U	0.000081	0.0005	0.000077	mg/L	3/23/04	21:00	96568	1	lg1
Phenol	108-95-2	0.0000953	U	0.0001	0.0005	p.0000953	mg/L	3/23/04	21:00	96568	1	lg1
Pyrene	129-00-0	0.000084	U	0.000088	0.0005	0.000084	mg/L	3/23/04	21:00	96568	1	lg1

Form I



Date:

4/6/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270409

MW-7-1SA04

Laboratory Sample ID: 270409-010

Date/Time Sampled 3/16/04

Sample Matrix: Water

Date/Time Received: 3/17/04

9:10 11:52

TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis D	ate/Time	Batch	D.F.	Analyst
Method: SW-846 8260B, Water									ethoury F			
1,2-Dichloroethane	107-06-2	0.00136	U	0.00136	0.005	0.00136	mg/L	3/19/04	19:06	96172	1	ydy
Benzene	71-43-2	0.00143	บ	0.00143	0.005	0.00143	mg/L	3/19/04	19:06	96172	1	ydy
Chlorobenzene	108-90-7	0.00155	U	0.00155	0.005	0.00155	mg/L	3/19/04	19:06	96172	1	ydy
Ethylbenzene	100-41-4	0.00137	U	0.00137	0.005	0.00137	mg/L	3/19/04	19:06	96172	1	ydy
Methylene Chloride	75-09-2	0.0013	U	0.0013	0.005	0.0013	mg/L	3/19/04	19:06	96172	1	ydy
Toluene	108-88-3	0.00136	Ū	0.00136	0.005	0.00136	mg/L	3/19/04	19:06	96172	1	ydy
Xylenes (total)	1330-20-7	0.00441	υ	0.00441	0.015	0.00441	mg/L	3/19/04	19:06	96172	1	ydy



Job Number: 270409

TRRP Laboratory Test Results

Date: 4/6/04

CUSTOMER: ERM Southwest, Inc.- Houston PROJECT: UPRR-HWPW-0014419 60 ATTN: Chris Young

Customer Sample ID: MW-7-1SA04 Laboratory Sample ID: 270409-010

Date/Time Sampled: 3/16/04 9:10 Sample Matrix: Water

Date/Time Received: 3/17/04 11:52

					·							
TEST METHOD	CAS#	RESULT	FLAG.	MDL	_MQL ∴	SQL	UNITS	Analysis D	ate/Time	Batch	D.F.	Analyst
Method: SW-846 8270C, Water												
1,2-Diphenylhydrazine	122-66-7	0.00005	U	0.00005	0.0001	0.00005	mg/L	3/26/04	22:05	96918	1	lg1
2,4-Dimethylphenol	105-67-9	0.000116	Ū	0.000122	0.0005	0.000116	mg/L	3/23/04	21:30	96568	1,	lg1
2,4-Dinitrotoluene	121-14-2	0.000009	U	0.000009	0.0001	0.000009	mg/L	3/26/04	22:05	96918	1	lg1
2,6-Dinitrotoluene	606-20-2	0.000026	Ū	0.000027	0.0001	0.000026	mg/L	3/26/04	22:05	96918	1,	lg1
2-Chloronaphthalene	91-58-7	0.000076	U	0.00008	0.0005	0.000076	mg/L	3/23/04	21:30	96568	1	lg1
2-Methyl-4,6-dinitrophenol	534-52-1	0.000295	U	0.00031	0.0015	0.000295	mg/L	3/23/04	21:30	96568	1	lg1
2-Methylnaphthalene	91-57-6	0.000067	U	0.00007	0.0005	0.000067	mg/L	3/23/04	21:30	96568	1	lg1
4-Nitrophenol	100-02-7	0.000285	. บ	0.000299	0.0015	0.000285	mg/L	3/23/04	21:30	96568	1	lg1
Acenaphthene	83-32-9	0.000285	J	0.000078	0.0005	0.000074	mg/L	3/23/04	21:30	96568	1	lg1
Acenaphthylene	208-96-8	0.000076	ับ	0.00008	0.0005	0.000076	mg/L	3/23/04	21:30	96568	1	lg1
Anthracene	120-12-7	0.000219	J	0.00013	0.0005	0.000124	mg/L	3/23/04	21:30	96568	1	lg1
Benzo(a)anthracene	56-55-3	0.000267	U	0.00028	0.0005	0.000267	mg/L	3/23/04	21:30	96568	1	lg1
Benzo(a)pyrene	50-32-8	0.000007	υ÷	0.000007	0.0001	0.000007	mg/L	3/26/04	22:05	96918	1	lg1
bis(2-chloroethoxy)methane	111-91-1	0.000009	U	0.000009	0.0001	0.000009	mg/L	3/26/04	22:05	96918	1	lg1



Date:

4/6/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270409

MW-7-1SA04

Laboratory Sample ID: 270409-010

Date/Time Sampled 3/16/04

Sample Matrix: Water

Date/Time Received: 3/17/04

9:10 11:52

	•												;	i
	TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL -	UNITS	Analysis Da	ite/Time	Batch	D.F.	Analyst	ı
	bis(2-ethylhexyl)phthalate	117-81-7	0.000172	U	0.00018	0.0005	0.000172	mg/L	3/23/04	21:30	96568	1	lg1	ı
	Chrysene	218-01-9	0.00009	บ	0.000094	0.0005	0.00009	mg/L	3/23/04	21:30	96568	1	lg1	1
	Dibenzofuran	132-64-9	0.000076	U	0.00008	0.0005	0.000076	mg/L	3/23/04	21:30	96568	1	lg1	
	Di-n-butyl Phthalate	84-74-2	0.000199	Ju	0.00015	0.0005	0.000143	mg/L	3/23/04	21:30	96568	.1		4-0 30-
	Fluoranthene	206-44-0	0.000093	บ	0.000098	0.0005	0.000093	mg/L	3/23/04	21:30	96568	.1	lg1	
	Fluorene	86-73-7	0.000068	U	0.000071	0.0005	0.000068	mg/L	3/23/04	21:30	96568	1	lg1	r
	Naphthalene	91-20-3	0.000067	บ	0.00007	0.0005	0.000067	mg/L	3/23/04	21:30	96568	1	lg1	ı
	Nitrobenzene	98-95-3	0.000143	U	0.00015	0.0005	0.000143	mg/L	3/23/04	21:30	96568	1	lg1	
	n-Nitrosodiphenylamine	86-30-6	0.00009	U	0.000094	0.0005	0.00009	mg/L	3/23/04	21:30	96568	1	lg1	
	Pentachlorophenol	87-86-5	0.000038	บ	0.00004	0.0003	0.000038	mg/L	3/26/04	22:05	96918	1	lg1	
	Phenanthrene	85-01-8	0.000077	บ	0.000081	0.0005	0.000077	mg/L	3/23/04	21:30	96568	1	lg1	
	Phenol	108-95-2	0.0000953	บ	0.0001	0.0005	0.0000953	mg/L	3/23/04	21:30	96568	1	lg1	
•	Pyrene	129-00-0	0.000084	บ	0.000088	0.0005	0.000084	mg/L	3/23/04	21:30	96568	1	lg1	

Form I Page 44



Date:

4/6/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270409

P-10-1SA04

Laboratory Sample ID: 270409-011

Date/Time Sampled 3/16/04

Sample Matrix: Water

Date/Time Received: 3/17/04

10:10 11:52

8.890.034.99 (c. 0.884.9)	T15524 X V	paga - material tagan	er Din er er er er	e. Prima empresentagas en	·	raines established	· Praktisty Tulis Proventini (grove)	r sa selik i suruk çala selek	in the second se		17.8 TO 17.8	1 17 10 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
TEST METHOD	CAS#	RESULT	FLAG	MDL .	, MQL∵	SQL	: UNITS	Analysis D	ate/Time	Batch	D.F.	Analyst
Method: SW-846 8260B, Water				9 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1								
1,2-Dichloroethane	107-06-2	0.00136	U	0.00136	0.005	0.00136	mg/L	3/19/04	19:33	96172	15	ydy
Benzene	71-43-2	0.00143	υ	0.00143	0.005	0.00143	mg/L	3/19/04	19:33	96172	1,	ydy
Chlorobenzene	108-90-7	0.00155	Ū	0.00155	0.005	0.00155	mg/L	3/19/04	19:33	96172	1.	ydy
Ethylbenzene	100-41-4	0.00137	U	0.00137	0.005	0.00137	mg/L	3/19/04	19:33	96172	15	ydy
Methylene Chloride	75-09-2	0.0013	U	0.0013	0.005	0.0013	mg/L	3/19/04	19:33	96172	1,	ydy
Toluene	108-88-3	0.00136	U	0.00136	0.005	0.00136	mg/L	3/19/04	19:33	96172	1.	ydy
Xylenes (total)	1330-20-7	0.00441	U	0.00441	0.015	0.00441	mg/L	3/19/04	19:33	96172	1	ydy

Ø

Job Number: 270409

TRRP Laboratory Test Results

Date:

4/6/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

P-10-1SA04

Laboratory Sample ID: 270409-011

Date/Time Sampled 3/16/04

Sample Matrix: Water

Date/Time Received: 3/17/04

11:52

10:10

TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis D	ate/Time	Batch	D.F.	Analyst	l
Method: SW-846 8270C, Water												1,7,11,11,11,11	4-04
1,2-Diphenylhydrazine	122-66-7	0.00005	U	0.00005	0.0001	0.00005	mg/L	3/26/04	22:35	96918	1	lg1	
2,4-Dimethylphenol	105-67-9	0.000116	U	0.000122	0.0005	0.000116	mg/L	3/23/04	22:00	96568	1	lg1	
2,4-Dinitrotoluene	121-14-2	0.000009	U	0.000009	0.0001	0.000009	mg/L	3/26/04	22:35	96918	1	.lg1	
2,6-Dinitrotoluene	606-20-2	0.000026	U	0.000027	0.0001	0.000026	mg/L	3/26/04	22:35	96918	1	lg1	
2-Chloronaphthalene	91-58-7	0.000076	U	0.00008	0.0005	0.000076	mg/L	3/23/04	22:00	96568	1	lg1	
2-Methyl-4,6-dinitrophenol	534-52-1	0.000295	U	0.00031	0.0015	0.000295	mg/L	3/23/04	22:00	96568	1	lg1	
2-Methylnaphthalene	91-57-6	0.000067	ប្រធា	0.00007	0.0005	0.000067	mg/L	3/23/04	22:00	96568	1	lg1 4	вс_
4-Nitrophenol	100-02-7	0.000285	U	0.000299	0.0015	0.000285	mg/L	3/23/04	22:00	96568	1	lg1	
Acenaphthene	83-32-9	0.000074	บ นว	0.000078	0.0005	0.000074	mg/L	3/23/04	22:00	96568	1	ا lg1	8 <u>(</u> _
Acenaphthylene	208-96-8	0.000076	Մա	0.00008	0.0005	0.000076	mg/L	3/23/04	22:00	96568	1	lg1 4	ø.
Anthracene	120-12-7	0.000124	โมบ	0.00013	0.0005	0.000124	mg/L	3/23/04	22:00	96568	1	lg1 4	86
Benzo(a)anthracene	56-55-3	0.000267	υ	0.00028	0.0005	0.000267	mg/L	3/23/04	22:00	96568	1	lg1	
Benzo(a)pyrene	50-32-8	0.000007	υ	0.000007	0.0001	0.000007	mg/L	3/26/04	22:35	96918	1	lg1	
bis(2-chloroethoxy)methane	111-91-1	0.000009	ָּט	0.000009	0.0001	0.000009	mg/L	3/26/04	22:35	96918	1	lg1	

Form I



Job Number: 270409

4/6/04 Date:

CUSTOMER: ERM Southwest, Inc.- Houston PROJECT: UPRR-HWPW-0014419 60 ATTN: Chris Young

Customer Sample ID:

P-10-1SA04

Date/Time Sampled 3/16/04

10:10

Date/Time Received: 3/17/04

11:52

Laboratory Sample ID: 270409-011

Sample Matrix: Water

Analyst 4-04 TEST METHOD . CAS # . FLAG Analysis Date/Time RESULT * MDL * MOL SOL : UNITS Batch D.F. bis(2-ethylhexyl)phthalate 0.000172 117-81-7 0.000172 U 0.00018 0.0005 mg/L 3/23/04 22:00 96568 1 lg1 Chrysene 218-01-9 0.00009 U 0.000094 0.0005 0.00009 3/23/04 22:00 96568 .1 mg/L lg1 Dibenzofuran 0.000076 TIWI 0.00008 0.0005 0.000076 3/23/04 22:00 96568 lg1 UBL 132-64-9 mg/L Di-n-butyl Phthalate 84-74-2 0.000379 Ju 0.00015 0.0005 0.000143 mg/L 3/23/04 22:00 96568 1 lgl ugu Fluoranthene 206-44-0 0.000093 U w 0.000098 0.0005 0.000093 3/23/04 22:00 96568 1 سلام 1g1 mg/L Fluorene 86-73-7 U wst 0.000071 0.0005 lg1 🗫 0.000068 0.000068 mg/L 3/23/04 22:00 96568 1 Naphthalene 91-20-3 0.000067 UUT 0.00007 0.0005 0.000067 3/23/04 22:00 96568 1 lg1 LBC mg/L Nitrobenzene 98-95-3 0.00015 0.0005 0.000143 3/23/04 0.000143 IJ mg/L 22:00 96568 1 lg1 n-Nitrosodiphenylamine 0.00009 IJ 0.000094 0.0005 0.00009 3/23/04 22:00 96568 1 lg1 86-30-6 mg/L 0.000038 Pentachlorophenol 87-86-5 0.000038 U 0.00004 0.0003 mg/L 3/26/04 22:35 96918 1 lg1 Phenanthrene 85-01-8 0.000077 **ひい**ず 0.000081 0.0005 0.000077 3/23/04 22:00 96568 1 191 48c mg/L Phenol 108-95-2 0.0000953 IJ 0.0001 0.0005 b.0000953 mg/L 3/23/04 22:00 96568 lgl 129-00-0 0.000084 0.000088 0.0005 0.000084 3/23/04 22:00 96568 lg1 Pyrene UW mg/L

Form I

D.

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Date:

4/6/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

3/19/04

20:00

96172

ydy

Customer Sample ID:

Job Number: 270409

P-10D-1SA04

Laboratory Sample ID: 270409-012

mg/L

Date/Time Sampled 3/16/04

Sample Matrix: Water

0.00441

0.015

Date/Time Received: 3/17/04

10:35 11:52

1330-20-7

TEST METHOD CAS# RESULT **FLAG** MDL MQL SQL Analysis Date/Time D.F. UNITS Batch Analyst Method: SW-846 8260B, Water 1.2-Dichloroethane U 0.00136 107-06-2 0.00136 0.00136 0.005 3/19/04 20:00 96172 1 mg/L ydy Benzene 71-43-2 0.00143 U 0.00143 0.005 0.00143 3/19/04 96172 20:00 mg/L ydy Chlorobenzene 108-90-7 0.00155 U 0.00155 0.005 0.00155 mg/L 3/19/04 20:00 96172 ydy Ethylbenzene 100-41-4 0.00137 U 0.00137 0.005 0.00137 3/19/04 20:00 96172 mg/L ydy Methylene Chloride 75-09-2 0.0013 0.0013 0.0013 U 0.005 3/19/04 20:00 96172 1 mg/L ydy Toluene 108-88-3 U 0.00136 0.005 0.00136 3/19/04 0.00136 20:00 96172 mg/L ydy

0.00441

Form I

Xylenes (total)

Page 48

U

0.00441



Date:

4/6/04

CUSTOMER: ERM Southwest, Inc.- Houston

ATTN: Chris Young PROJECT: UPRR-HWPW-0014419 60

Customer Sample ID:

Job Number: 270409

P-10D-1SA04

Laboratory Sample ID: 270409-012

Date/Time Sampled 3/16/04

Sample Matrix: Water

Date/Time Received: 3/17/04

10:35 11:52

·						1.5			• • •				
TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL∉	SQL	UNITS	Analysis Da	ite/Time	Batch	D.F.	Analyst	
Method: SW-846 8270C, Water												-	-4-04
1,2-Diphenylhydrazine	122-66-7	0.00005	U	0.00005	0.0001	0.00005	mg/L	3/26/04	23:04	96918	1	lg1	
2,4-Dimethylphenol	105-67-9	0.000116	U	0.000122	0.0005	0.000116	mg/L	3/23/04	22:30	96568	1	lg1	
2,4-Dinitrotoluene	121-14-2	0.000009	U	0.000009	0.0001	0.000009	mg/L	3/26/04	23:04	96918	1	lg1	
2,6-Dinitrotoluene	606-20-2	0.000026	U	0.000027	0.0001	0.000026	mg/L	3/26/04	23:04	96918	1	lg1	
2-Chloronaphthalene	91-58-7	0.000076	U	0.00008	0.0005	0.000076	mg/L	3/23/04	22:30	96568	1	lg1 _.	
2-Methyl-4,6-dinitrophenol	534-52-1	0.000295	U	0.00031	0.0015	0.000295	mg/L	3/23/04	22:30	96568	1	lg1	
2-Methylnaphthalene	91-57-6	0.0218	5	0.00007	0.0005	0.000067	mg/L	3/23/04	22:30	.96568	1	lg1 d	8 6-
4-Nitrophenol	100-02-7	0.000285	U	0.000299	0.0015	0.000285	mg/L	3/23/04	22:30	96568	1	lg1	
Acenaphthene	83-32-9	0.08375	5	0.000078	0.0005	0.00037	mg/L	3/24/04	18:56	96568	5	lg1 (BL
Acenaphthylene	208-96-8	0.000586	5	0.00008	0.0005	0.000076	mg/L	3/23/04	22:30	96568	1	lg1 d	36
Anthracene	120-12-7	0.004746	J	0.00013	0.0005	0.000124	mg/L	3/23/04	22:30	96568	1	lg1 (Bh
Benzo(a)anthracene	56-55-3	0.000267	U	0.00028	0.0005	0.000267	mg/L	3/23/04	22:30	96568	1	lg1	
Benzo(a)pyrene	50-32-8	0.000007	U	0.000007	0.0001	0.000007	mg/L	3/26/04	23:04	96918	1	lg1	
bis(2-chloroethoxy)methane	111-91-1	0.000009	U	0.000009	0.0001	0.000009	mg/L	3/26/04	23:04	96918	1	lg1	

Form I



Date:

4/6/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270409

P-10D-1SA04

Laboratory Sample ID: 270409-012

Date/Time Sampled 3/16/04

Sample Matrix: Water

10:35 11:52

Date/Time Received: 3/17/04

			na amana. at			1/2/2011		1-2-2		The same of the second strengths	1.00	1
TEST METHOD	CAS#	RESULT	FLAG:	MDL	MQL	SQL	UNITS	Analysis D	ate/Time	Batch	D.F.	Analyst
bis(2-ethylhexyl)phthalate	117-81-7	0.000172	บ	0.00018	0.0005	0.000172	mg/L	3/23/04	22:30	96568	1	lg1
Chrysene	218-01-9	0.00009	U	0.000094	0.0005	0.00009	mg/L	3/23/04	22:30	96568	1	lg1
Dibenzofuran	132-64-9	0.03219	」」	0.00008	0.0005	0.000076	mg/L	3/23/04	22:30	96568	1	lg1
Di-n-butyl Phthalate	84-74-2	0.000418	JU	0.00015	0.0005	0.000143	mg/L	3/23/04	22:30	96568	1	lg1
Fluoranthene	206-44-0	0.003192	ブ	0.000098	0.0005	0.000093	mg/L	3/23/04	22:30	96568	1	lg1 4
Fluorene	86-73-7	0.04259	J	0.000071	0.0005	0.000068	mg/L	3/23/04	22:30	96568	1	lg1 4
Naphthalene	91-20-3	0.4144	J	0.00007	0.0005	0.0013	mg/L	3/24/04	19:26	96568	20	ا lg1
Nitrobenzene	98-95-3	0.000143	υ	0.00015	0.0005	0.000143	mg/L	3/23/04	22:30	96568	1	lg1
n-Nitrosodiphenylamine	86-30-6	0.00009	U	0.000094	0.0005	0.00009	mg/L	3/23/04	22:30	96568	1	lg1
Pentachlorophenol	87-86-5	0.000038	บ	0.00004	0.0003	0.000038	mg/L	3/26/04	23:04	96918	1	lg1
Phenanthrene	85-01-8	0.02155	J	0.000081	0.0005	0.000077	mg/L	3/23/04	22:30	96568	1	lg1 4
Phenol	108-95-2	0.0000953	U.	0.0001	0.0005	p.0000953	mg/L	3/23/04	22:30	96568	1	lg1
Pyrene	129-00-0	0.001372	J	0.000088	0.0005	0.000084	mg/L	3/23/04	22:30	96568	1	lg1 4

Form I

6310 Rothway Drive • Housto	n, TX 77040	• Tel: 713 690 4444	4 • Fax: 713 690) 5646 • www.stl-inc.com
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Date:

4/6/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270409

MW-8-1SA04

Laboratory Sample ID: 270409-013

Date/Time Sampled 3/16/04

13:15

Sample Matrix: Water

Date/Time Received: 3/17/04

11:52

TEST METHOD	CAS#:	RESULT	FLAG	MDL	MQL	SQL	UNITS*	Analysis Da	ite/Time	Batch	D.F.	Analyst
Method: SW-846 8260B, Water												
1,2-Dichloroethane	107-06-2	0.00136	U	0.00136	0.005	0.00136	mg/L	3/19/04	20:27	96172	1	ydy
Benzene	71-43-2	0.00143	ับ	0.00143	0.005	0.00143	mg/L	3/19/04	20:27	96172	1	ydy
Chlorobenzene	108-90-7	0.00155	U	0.00155	0.005	0.00155	mg/L	3/19/04	20:27	96172	1	ydy
Ethylbenzene	100-41-4	0.00137	U	0.00137	0.005	0.00137	mg/L	3/19/04	20:27	96172	1	ydy
Methylene Chloride	75-09-2	0.0013	U	0.0013	0.005	0.0013	mg/L	3/19/04	20:27	96172	1	ydy
Toluene	108-88-3	0.00136	U	0.00136	0.005	0.00136	mg/L	3/19/04	20:27	96172	1	ydy
Xylenes (total)	1330-20-7	0.00441	Ū	0.00441	0.015	0.00441	mg/L	3/19/04	20:27	96172	1	ydy

.....



Date:

4/6/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270409

MW-8-1SA04

Laboratory Sample ID: 270409-013

Date/Time Sampled 3/16/04

Sample Matrix: Water

13:15 11:52

Date/Time Received: 3/17/04

TEST METHOD	CAS#	RESULT -	FLAG	MDL	MQL	SQL	UNITS	Analysis Date/Tim	e Batch	D.F.	Analyst
Method: SW-846 8270C, Water	CAO#	KESULI II	Market at a series	antible reconstruction is.	Color River	SQL	UINITS	Alialysis Date/Till	E Datch	D.F.	Analyst
regression and selections of the selection of the selecti											
1,2-Diphenylhydrazine	122-66-7	0.00005	U	0.00005	0.0001	0.00005	mg/L	3/26/04 23:33	96918	1	lg1
2,4-Dimethylphenol	105-67-9	0.000116	U	0.000122	0.0005	0.000116	mg/L	3/23/04 23:00	96568	1	lg1
2,4-Dinitrotoluene	121-14-2	0.000009	U	0.000009	0.0001	0.000009	mg/L	3/26/04 23:33	96918	1	lg1
2,6-Dinitrotoluene	606-20-2	0.000026	U	0.000027	0.0001	0.000026	mg/L	3/26/04 23:33	96918	1	lg1
2-Chloronaphthalene	91-58-7	0.000076	U	0.00008	0.0005	0.000076	mg/L	3/23/04 23:00	96568	1	lg1
2-Methyl-4,6-dinitrophenol	534-52-1	0.000295	U	0.00031	0.0015	0.000295	mg/L	3/23/04 23:00	96568	1	lg1
2-Methylnaphthalene	91-57-6	0.000067	U	0.00007	0.0005	0.000067	mg/L	3/23/04 23:00	96568	1	lg1
4-Nitrophenol	100-02-7	0.000285	U	0.000299	0.0015	0.000285	mg/L	3/23/04 23:00	96568	. 1	lg1
Acenaphthene	83-32-9	0.000074	U	0.000078	0.0005	0.000074	mg/L	3/23/04 23:00	96568	1	lgl
Acenaphthylene	208-96-8	0.000076	U	0.00008	0.0005	0.000076	mg/L	3/23/04 23:00	96568	1	lg1
Anthracene	120-12-7	0.000124	U	0.00013	0.0005	0.000124	mg/L	3/23/04 23:00	96568	1	lg1
Benzo(a)anthracene	56-55-3	0.000267	U	0.00028	0.0005	0.000267	mg/L	3/23/04 23:00	96568	1	lg1
Benzo(a)pyrene	50-32-8	0.000007	U	0.000007	0.0001	0.000007	mg/L	3/26/04 23:33	96918	1	lg1
bis(2-chloroethoxy)methane	111-91-1	0.000009	U	0.000009	0.0001	0.000009	mg/L	3/26/04 23:33	96918	1	lg1

Form I



4/6/04 Date:

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60 ATTN: Chris Young

Customer Sample ID:

Job Number: 270409

MW-8-1SA04

Laboratory Sample ID: 270409-013

Date/Time Sampled 3/16/04

13:15

Sample Matrix: Water

Date/Time Received: 3/17/04

11:52

TEST METHOD	E CAS#U	RESULT	FLAG	MDL	MQL	SQL	🦪 UNITS 🤚	Analysis Da	ate/Time	Batch	∃ D.F.	Analyst
bis(2-ethylhexyl)phthalate	117-81-7	0.000172	U	0.00018	0.0005	0.000172	mg/L	3/23/04	23:00	96568	1	lg1
Chrysene	218-01-9	0.00009	υ	0.000094	0.0005	0.00009	mg/L	3/23/04	23:00	96568	1,	lg1
Dibenzofuran	132-64-9	0.000076	U	0.00008	0.0005	0.000076	mg/L	3/23/04	23:00	96568	1,	lg1
Di-n-butyl Phthalate	84-74-2	0.000268	JU	0.00015	0.0005	0.000143	mg/L	3/23/04	23:00	96568	1	ے اgا د
Fluoranthene	206-44-0	0.000093	υ	0.000098	0.0005	0.000093	mg/L	3/23/04	23:00	96568	1	lg1
Fluorene	86-73-7	0.000068	U	0.000071	0.0005	0.000068	mg/L	3/23/04	23:00	96568	1	lg1
Naphthalene	91-20-3	0.000067	U	0.00007	0.0005	0.000067	mg/L	3/23/04	23:00	96568	1	lg1
Nitrobenzene	98-95-3	0.000143	U	0.00015	0.0005	0.000143	mg/L	3/23/04	23:00	96568	1	lg1
n-Nitrosodiphenylamine	86-30-6	0.00009	U	0.000094	0.0005	0.00009	mg/L	3/23/04	23:00	96568	1	lg1
Pentachlorophenol	87-86-5	0.000038	U	0.00004	0.0003	0.000038	mg/L	3/26/04	23:33	96918	1	lg1
Phenanthrene	85-01-8	0.000077	U	0.000081	0.0005	0.000077	mg/L	3/23/04	23:00	96568	1	lg1
Phenol	108-95-2	0.0000953	U	0.0001	0.0005	0.0000953	mg/L	3/23/04	23:00	96568	1	lg1
Pyrene	129-00-0	0.000084	ับ	0.000088	0.0005	0.000084	mg/L	3/23/04	23:00	96568	1	lg1



Job Number: 270409

TRRP Laboratory Test Results

Date: 4/6/04

CUSTOMER: ERM Southwest, Inc.- Houston PROJECT: UPRR-HWPW-0014419 60 ATTN: Chris Young

Customer Sample ID: MW-5-1SA04 Laboratory Sample ID: 270409-014

Date/Time Received: 3/17/04 11:52

		the transfer of the second	•	•			•			•		
TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis Da	ate/Time	Batch	D.F.	Analyst
Method: SW-846 8260B, Water												
1,2-Dichloroethane	107-06-2	0.00136	U	0.00136	0.005	0.00136	mg/L	3/19/04	20:54	96172	1	ydy
Benzene	71-43-2	0.00143	U	0.00143	0.005	0.00143	mg/L	3/19/04	20:54	96172	1	ydy
Chlorobenzene	108-90-7	0.00155	U	0.00155	0.005	0.00155	mg/L	3/19/04	20:54	96172	1	ydy
Ethylbenzene	100-41-4	0.00137	U	0.00137	0.005	0.00137	mg/L	3/19/04	20:54	96172	1	ydy
Methylene Chloride	75-09-2	0.0013	U	0.0013	0.005	0.0013	mg/L	3/19/04	20:54	96172	1	ydy
Toluene	108-88-3	0.00136	U	0.00136	0.005	0.00136	mg/L	3/19/04	20:54	96172	1	ydy
Xylenes (total)	1330-20-7	0.00441	U	0.00441	0.015	0.00441	mg/L	3/19/04	20:54	96172	1	ydy

Form I

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Date:

4/6/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young 🔩

Customer Sample ID:

Job Number: 270409

MW-5-1SA04

Laboratory Sample ID: 270409-014

Date/Time Sampled 3/16/04

Sample Matrix: Water

Date/Time Received: 3/17/04

14:45 11:52

TEST METHOD	CAS#	RESULT	FLAG	MDL	⊹MQL :	- SQL	UNITS	Analysis Date/Time		Batch	D.F.	Analyst
Method: SW-846 8270C, Water												
1,2-Diphenylhydrazine	122-66-7	0.00005	U	0.00005	0.0001	0.00005	mg/L	3/27/04	0:03	96918	1.	lg1
2,4-Dimethylphenol	105-67-9	0.000116	U	0.000122	0.0005	0.000116	mg/L	3/23/04	23:30	96568	1	lg1
2,4-Dinitrotoluene	121-14-2	0.000009	U	0.000009	0.0001	0.000009	mg/L	3/27/04	0:03	96918	1	lg1
2,6-Dinitrotoluene	606-20-2	0.000026	U	0.000027	0.0001	0.000026	mg/L	3/27/04	0:03	96918	1	lg1
2-Chloronaphthalene	91-58-7	0.000076	U	0.00008	0.0005	0.000076	mg/L	3/23/04	23:30	96568	1	lg1
2-Methyl-4,6-dinitrophenol	534-52-1	0.000295	U	0.00031	0.0015	0.000295	mg/L	3/23/04	23:30	96568	1.	lg1
2-Methylnaphthalene	91-57-6	0.000067	υ	0.00007	0.0005	0.000067	mg/L	3/23/04	23:30	96568	1	lg1
4-Nitrophenol	100-02-7	0.000285	υ	0.000299	0.0015	0.000285	mg/L	3/23/04	23:30	96568	1	lg1
Acenaphthene	83-32-9	0.000283	J	0.000078	0.0005	0.000074	mg/L	3/23/04	23:30	96568	1	lg1
Acenaphthylene	208-96-8	0.000076	υ	0.00008	0.0005	0.000076	mg/L	3/23/04	23:30	96568	1	lg1
Anthracene	120-12-7	0.000251	J	0.00013	0.0005	0.000124	mg/L	3/23/04	23:30	96568	1	lg1
Benzo(a)anthracene	56-55-3	0.000267	U	0.00028	0.0005	0.000267	mg/L	3/23/04	23:30	96568	1	lg1
Benzo(a)pyrene	50-32-8	0.000007	υ	0.000007	0.0001	0.000007	mg/L	3/27/04	0:03	96918	1 .	lg1
bis(2-chloroethoxy)methane	111-91-1	0.000009	U	0.000009	0.0001	0.000009	mg/L	3/27/04	0:03	96918	1	lg1

Form I

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TRRP Laboratory Test Results

CUSTOMER: ERM Southwest, Inc.- Houston PROJECT: UPRR-HWPW-0014419 60 ATTN: Chris Young

Customer Sample ID:

Job Number: 270409

MW-5-1SA04

Laboratory Sample ID: 270409-014

4/6/04

Date:

Date/Time Sampled: 3/16/04

14:45

Sample Matrix: Water

Date/Time Received: 3/17/04

11:52

		. •											
TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis D	ate/Time	Batch	D.F.	Analyst	بار ا
bis(2-ethylhexyl)phthalate	117-81-7	0.000172	U	0.00018	0.0005	0.000172	mg/L	3/23/04	23:30	96568	1	lg1	,-0
Chrysene	218-01-9	0.00009	U	0.000094	0.0005	0.00009	mg/L	3/23/04	23:30	96568	1	lg1	
Dibenzofuran	132-64-9	0.000076	υ	0.00008	0.0005	0.000076	mg/L	3/23/04	23:30	96568	1	lg1	
Di-n-butyl Phthalate	84-74-2	0.000253	JϤ	0.00015	0.0005	0.000143	mg/L	3/23/04	23:30	96568	1	lg1 430	G
Fluoranthene	206-44-0	0.000093	U	0.000098	0.0005	0.000093	mg/L	3/23/04	23:30	96568	1	lg1	
Fluorene	86-73-7	0.000068	U	0.000071	0.0005	0.000068	mg/L	3/23/04	23:30	96568	1	lg1	
Naphthalene	91-20-3	0.000067	U	0.00007	0.0005	0.000067	mg/L	3/23/04	23:30	96568	1	lg1	
Nitrobenzene	98-95-3	0.000143	U	0.00015	0.0005	0.000143	mg/L	3/23/04	23:30	96568	1	lg1	
n-Nitrosodiphenylamine	86-30-6	0.00009	U	0.000094	0.0005	0.00009	mg/L	3/23/04	23:30	96568	1	lgl	
Pentachlorophenol	87-86-5	0.000038	U	0.00004	0.0003	0.000038	mg/L	3/27/04	0:03	96918	1	lg1	
Phenanthrene	85-01-8	0.000077	บ	0.000081	0.0005	0.000077	mg/L	3/23/04	23:30	96568	1	lg1	
Phenol	108-95-2	0.0000953	U	0.0001	0.0005	0.0000953	mg/L	3/23/04	23:30	96568	1	lg1	
Pyrene	129-00-0	0.000084	U	0.000088	0.0005	0.000084	mg/L	3/23/04	23:30	96568	1	lg1	

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Job Number.: 270409	QUALITY	CONTROL	RE	SULT	S	Report	: Date.: 04/06	/2004	
CUSTOMER: ERM Southwest, Inc Houston	PROJEC	T: UPRR-HWPW-00	14419	60		ATTN:	Chris Young		
QC Type Description		Reag. Code		Lab 1	ID	Dilut	ion Factor	Date	Time
Test Method: SW-846 8270C Method Description.: Semivolatile Organ	nics - SIM Analysi	Unitss Batch(s)	: 90	: ug/ 6918	/L		Analyst	: lg1	
LCS Laboratory Control Sample		SVS030804A		96167			(03/26/200	4 154
Parameter/Test Description	QC Result	QC Result	True	Value	Orig.	Value	Calc. Result	* Limi	ts
enzo(a)pyrene, Water is(2-chloroethoxy)methane, Water ,4-Dinitrotoluene, Water ,6-Dinitrotoluene, Water entachlorophenol, Water ,2-Diphenylhydrazine, Water	0.37068 0.40354 0.35773 0.39134 0.46185 0.34770		(((2	0.500000 0.500000 0.500000 0.500000 0.500000		· · · · · · · · · · · · · · · · · · ·	74.1 80.7 71.5 78.3 92.4 69.5	60- 60- 30-	130 130 140 140 130 130
MB Method Blank		SVS030204B		96167				03/26/200	4 151
Parameter/Test Description	QC Result	QC Result	True '	Value	Orig.	Value	Calc. Result	* Limi	ts
is(2-chloroethoxy)methane, Water	0						•		
4-Dinitrotoluene, Water .6-Dinitrotoluene, Water entachlorophenol, Water 2-Diphenylhydrazine, Water	0 0 0 0	SVS030804A		270409-5				03/26/200	4 174
.4-Dinitrotoluene, Water ,6-Dinitrotoluene, Water entachlorophenol, Water ,2-Diphenylhydrazine, Water MS Matrix Spike	0	SVS030804A		andianteriori	Orig.	Value	Calc. Result	03/26/200 * Limi	unovar, inggrisis
.4-Dinitrotoluene, Water ,6-Dinitrotoluene, Water entachlorophenol, Water ,2-Diphenylhydrazine, Water	0 0 0	S Contraction of the specific sections	True '	andianteriori	Orig.	Value 0 0 0 0 0 0 0 0 0		* Limi 30- 30- 24- 30- 5- 140	ts 130 130
A-Dinitrotoluene, Water ,6-Dinitrotoluene, Water entachlorophenol, Water ,2-Diphenylhydrazine, Water MS Matrix Spike Parameter/Test Description enzo(a)pyrene, Water is(2-chloroethoxy)methane, Water ,4-Dinitrotoluene, Water entachlorophenol, Water	0 0 0 0 QC Result 0.41440 0.38563 0.44872 0.46135 0.69722	S Contraction of the specific sections	True '	Value 0.500000 0.500000 0.500000 0.500000 0.500000	Orig.	0 0 0 0	83 77 90 92 139 88	* Limi 30- 30- 24- 30- 5- 140	ts 130 130 96 130 103
4-Dinitrotoluene, Water 6-Dinitrotoluene, Water entachlorophenol, Water 2-Diphenylhydrazine, Water MS Matrix Spike Parameter/Test Description enzo(a)pyrene, Water s(2-chloroethoxy)methane, Water 4-Dinitrotoluene, Water 6-Dinitrotoluene, Water entachlorophenol, Water 2-Diphenylhydrazine, Water	0 0 0 0 QC Result 0.41440 0.38563 0.44872 0.46135 0.69722	QC Result	True '	Value 0.500000 0.500000 0.500000 0.500000 0.500000 0.500000	Orig.	0 0 0 0 0 0	83 77 90 92 139 88	* Limi 30- 30- 24- 30- 5- 140	ts 130 130 96 130 103
4-Dinitrotoluene, Water 6-Dinitrotoluene, Water entachlorophenol, Water 2-Diphenylhydrazine, Water MS Matrix Spike Parameter/Test Description enzo(a)pyrene, Water s(2-chloroethoxy)methane, Water 4-Dinitrotoluene, Water 6-Dinitrotoluene, Water entachlorophenol, Water 2-Diphenylhydrazine, Water WSD Matrix Spike Duplicate Parameter/Test Description	QC Result 0.41440 0.38563 0.44872 0.46135 0.69722 0.44207	QC Result	True '	Value 0.500000 0.500000 0.500000 0.500000 0.500000 0.500000		0 0 0 0 0 0	83 77 90 92 139 88	* Limi 30- 30- 24- 30- 5- 140 03/26/200 * Limi 30.0-	ts 130 130 96 130 103
4-Dinitrotoluene, Water 6-Dinitrotoluene, Water 2-Diphenylhydrazine, Water 2-Diphenylhydrazine, Water MS Matrix Spike Parameter/Test Description enzo(a)pyrene, Water s(2-chloroethoxy)methane, Water 4-Dinitrotoluene, Water 6-Dinitrotoluene, Water 2-Diphenylhydrazine, Water 2-Diphenylhydrazine, Water MSD Matrix Spike Duplicate Parameter/Test Description enzo(a)pyrene, Water	QC Result 0.41440 0.38563 0.44872 0.46135 0.69722 0.44207	QC Result SVS030804A QC Result	True '	Value 0.500000 0.500000 0.500000 0.500000 0.500000 0.500000		0 0 0 0 0 0 0 Value	Calc. Result 83 77 90 92 139 88 Calc. Result 74 11.5 77	* Limi 30- 30- 24- 30- 5- 140 * Limi 30.0- 40.0 30.0-	ts 130 130 96 130 103 4 181
4-Dinitrotoluene, Water 6-Dinitrotoluene, Water 2-Diphenylhydrazine, Water 2-Diphenylhydrazine, Water MS Matrix Spike Parameter/Test Description enzo(a)pyrene, Water s(2-chloroethoxy)methane, Water 4-Dinitrotoluene, Water 6-Dinitrotoluene, Water 2-Diphenylhydrazine, Water 2-Diphenylhydrazine, Water MSD Matrix Spike Duplicate Parameter/Test Description enzo(a)pyrene, Water s(2-chloroethoxy)methane, Water	QC Result 0.41440 0.38563 0.44872 0.46135 0.69722 0.44207 QC Result 0.36938	QC Result SVS030804A QC Result 0.41440	True '	Value 0.500000 0.500000 0.500000 0.500000 0.500000 0.500000 Value 0.500000		0 0 0 0 0 0 0 0 0 Value	Calc. Result 83 77 90 92 139 88 Calc. Result 74 11.5 77 0.4 84	* Limi 30- 30- 24- 30- 5- 140 03/26/200 * Limi 30.0- 40.0 30.0- 30.0 24.0-	ts 130 130 96 130 103 4 181 ts 130.0
4-Dinitrotoluene, Water 6-Dinitrotoluene, Water entachlorophenol, Water 2-Diphenylhydrazine, Water MS Matrix Spike Parameter/Test Description enzo(a)pyrene, Water (2-chloroethoxy)methane, Water 4-Dinitrotoluene, Water 6-Dinitrotoluene, Water entachlorophenol, Water 2-Diphenylhydrazine, Water WSD Matrix Spike Duplicate Parameter/Test Description enzo(a)pyrene, Water s(2-chloroethoxy)methane, Water 4-Dinitrotoluene, Water	QC Result 0.41440 0.38563 0.44872 0.46135 0.69722 0.44207 QC Result 0.36938 0.38728	QC Result SVS030804A QC Result 0.41440 0.38563	True '	Value 0.500000 0.500000 0.500000 0.500000 0.500000 270409-5 Value 0.500000		0 0 0 0 0 0 0 0 0 Value	Calc. Result 83 77 90 92 139 88 Calc. Result 74 11.5 77 0.4 84 6.6 86	* Limi 30- 30- 24- 30- 5- 140 23/26/200 * Limi 30.0- 40.0 30.0- 30.0 30.0- 30.0	ts 130 130 96 130 103 4 181 ts 130.0
4-Dinitrotoluene, Water 6-Dinitrotoluene, Water entachlorophenol, Water 2-Diphenylhydrazine, Water MS Matrix Spike Parameter/Test Description enzo(a)pyrene, Water s(2-chloroethoxy)methane, Water 4-Dinitrotoluene, Water 6-Dinitrotoluene, Water entachlorophenol, Water 2-Diphenylhydrazine, Water MSD Matrix Spike Duplicate	QC Result 0.41440 0.38563 0.44872 0.46135 0.69722 0.44207 QC Result 0.36938 0.38728 0.42011	QC Result SVS030804A QC Result 0.41440 0.38563 0.44872	True '	Value 0.500000 0.500000 0.500000 0.500000 0.500000 0.500000 0.500000 0.500000 0.500000		0 0 0 0 0 0 0 Value 0	Calc. Result 83 77 90 92 139 88 Calc. Result 74 11.5 77 0.4 84 6.6	* Limi 30- 30- 30- 140 * Limi 30.0- 40.0 30.0- 30.0 30.0- 30.0 30.0- 30.0	ts 130 130 96 130 103 4 181 ts 130.0 130.0 96.0



Job Number.: 270409	QUALITY	CONTROL	RESULTS	Report Date.: 04/06/2004	
CUSTOMER: ERM Southwest, Inc Hous	ton PROJEC	CT: UPRR-HWPW-00	14419 60	ATTN:	
QC Type Descript	ion	Reag. Code	Lab ID	Dilution Factor Date	Time
Test Method: SW-846 8270C Method Description.: Semivolatile O	rganics, Low Level		ug/L : 96428 96568	Analyst: lg	31
LCS Laboratory Control Sam	ple	SVS021204C	96166	03/23/7	2004 1601
Parameter/Test Description	QC Result	QC Result	True Value Orig.	Value Calc. Result * L	imits F
enaphthene, Water	4.45229	-	5.000000		32-165
enaphthylene, Water	4.20155		5.000000		10-150 23-178
nthracene, Water enzo(a)anthracene, Water	4.60540 4.51087		5.000000 5.000000		25-176 25-180
s(2-ethylhexyl)phthalate, Water	4.44139		5.000000		25-173
Chloronaphthalene, Water	4.06284		5.000000		23-143
rysene, Water	4.71995		5.000000		23-180
benzofuran, Water	4.18033		5.000000		35-153 30-105
-n-butyl Phthalate, Water uoranthene, Water	4.62008 4.82332		5.000000 5.000000		28-185 28-180
uorene, Water	4.46478		5.000000		30-189
Methylnaphthalene, Water	4.29038		5.000000		26-168
phthalene, Water	4.30515		5.000000		36-139
trobenzene, Water	4.04759		5.000000		17-163
Nitrosodiphenylamine, Water	4.36729 4.58732		5.000000 5.000000		58-174 26-166
menanthrene, Water Vrene, Water	4.74744		5.000000		28-173
,4-Dimethylphenol, Water	3.17145		5.000000		23-157
Methyl-4,6-dinitrophenol, Water	7.39703		5.00000	1/7 0	10-164
memilia de anni el obuculori marci	1.571.00				
Nitrophenol, Water	1.87716		5.000000	37.5	10-92
				37.5	
Nitrophenol, Water	1.87716		5.000000	37.5	10-92
Nitrophenol, Water nenol, Water	1.87716	SVS0302048	5.000000	37.5 42.7	10-92
Nitrophenol, Water nenol, Water	1.87716	SVS030204B QC Result	5.000000 5.000000	37.5 42.7	10-92 20-83 2004:: 1531
MB Method Blank Parameter/Test Description cenaphthene, Water	1.87716 2.13328 QC Result	× ······	5.000000 5.000000	37.5 42.7 03/23/	10-92 20-83 2004:: 1531
MB Method Blank Parameter/Test Description cenaphthene, Water cenaphthylene, Water	1.87716 2.13328 QC Result 0 0	× ······	5.000000 5.000000	37.5 42.7 03/23/	10-92 20-83 2004:: 1531
MB Method Blank Parameter/Test Description cenaphthene, Water cenaphthylene, Water chthracene, Water	1.87716 2.13328 QC Result 0 0	× ······	5.000000 5.000000	37.5 42.7 03/23/	10-92 20-83 2004:: 1531
MB Method Blank Parameter/Test Description cenaphthene, Water cenaphthylene, Water	1.87716 2.13328 QC Result 0 0	× ······	5.000000 5.000000	37.5 42.7 03/23/	10-92 20-83 2004:: 1531
MB Method Blank Parameter/Test Description cenaphthene, Water cenaphthylene, Water hthracene, Water enzo(a)anthracene, Water is(2-ethylhexyl)phthalate, Water -Chloronaphthalene, Water	1.87716 2.13328 QC Result 0 0 0	× ······	5.000000 5.000000	37.5 42.7 03/23/	10-92 20-83 2004:: 1531
MB Method Blank Parameter/Test Description cenaphthene, Water cenaphthylene, Water chracene, Water cis(2-ethylhexyl)phthalate, Water chloronaphthalene, Water irysene, Water	1.87716 2.13328 QC Result 0 0 0 0 0 0	× ······	5.000000 5.000000	37.5 42.7 03/23/	10-92 20-83 2004:: 1531
MB Method Blank Parameter/Test Description cenaphthene, Water cenaphthylene, Water chthracene, Water enzo(a)anthracene, Water is(2-ethylhexyl)phthalate, Water -Chloronaphthalene, Water incysene, Water ibenzofuran, Water	1.87716 2.13328 QC Result 0 0 0 0 0 0 0	× ······	5.000000 5.000000	37.5 42.7 03/23/	10-92 20-83 2004:: 1531
MB Method Blank Parameter/Test Description cenaphthene, Water cenaphthylene, Water chracene, Water cis(2-ethylhexyl)phthalate, Water -Chloronaphthalene, Water irysene, Water ibenzofuran, Water i-n-butyl Phthalate, Water	1.87716 2.13328 QC Result 0 0 0 0 0 0 0 0 0 0	× ······	5.000000 5.000000	37.5 42.7 03/23/	10-92 20-83 2004:: 1531
MB Method Blank Parameter/Test Description cenaphthene, Water cenaphthylene, Water chracene, Water chracene, Water chronaphthalene, Water cis(2-ethylhexyl)phthalate, Water chloronaphthalene, Water chloronaphthalene, Water chloronaphthalene, Water chloronaphthalene, Water chloronaphthalene, Water chloronaphthalene, Water chenzofuran, Water chenzofuran, Water chloronaphthalate, Water chenzofuran, Water chloronaphthene, Water	1.87716 2.13328 QC Result 0 0 0 0 0 0 0	× ······	5.000000 5.000000	37.5 42.7 03/23/	10-92 20-83 2004:: 1531
MB Method Blank Parameter/Test Description cenaphthene, Water cenaphthylene, Water	1.87716 2.13328 QC Result 0 0 0 0 0 0 0 0 0 0	× ······	5.000000 5.000000	37.5 42.7 03/23/	10-92 20-83 2004:: 1531
MB Method Blank Parameter/Test Description cenaphthene, Water cenaphthylene, Water cenaphthylene, Water cenaphthylene, Water cenzo(a)anthracene, Water cenzo(a)anthracene, Water coloronaphthalene, Water coloronaphthalene, Water coloronaphthylene, Water coloronaphthylene	1.87716 2.13328 QC Result 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	× ······	5.000000 5.000000	37.5 42.7 03/23/	10-92 20-83 2004:: 1531
MB Method Blank Parameter/Test Description menaphthene, Water menaphthylene, Water menaphtylene, W	1.87716 2.13328 QC Result 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	× ······	5.000000 5.000000	37.5 42.7 03/23/	10-92 20-83 2004:: 1531
MB Method Blank Parameter/Test Description menaphthene, Water menaphthylene, Water methylnaphthylene, Water	1.87716 2.13328 QC Result 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	× ······	5.000000 5.000000	37.5 42.7 03/23/	10-92 20-83 2004:: 1531
MB Method Blank Parameter/Test Description menaphthene, Water menaphthylene, Water menaphthalene, Water menaphthalene, Water methylnaphthalene, Wate	1.87716 2.13328 QC Result 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	× ······	5.000000 5.000000	37.5 42.7 03/23/	10-92 20-83 2004:: 1531
MB Method Blank Parameter/Test Description menaphthene, Water menaphthylene, Water methylnaphthylene, Water	1.87716 2.13328 QC Result 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	× ······	5.000000 5.000000	37.5 42.7 03/23/	10-92 20-83 2004:: 1531
MB Method Blank Parameter/Test Description tenaphthene, Water tenaphthylene, Water tenaphthylene, Water tenzo(a)anthracene, Water toloronaphthalene, Water	1.87716 2.13328 QC Result 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	QC Result	5.000000 5.000000	37.5 42.7 03/23/	10-92 20-83 2004:: 1531
MB Method Blank Parameter/Test Description enaphthene, Water enaphthylene, Water thracene, Water nzo(a)anthracene, Water s(2-ethylhexyl)phthalate, Water Chloronaphthalene, Water rysene, Water benzofuran, Water -n-butyl Phthalate, Water uoranthene, Water worene, Water trobenzene, Water Nitrosodiphenylamine, Water enanthrene, Water rrene, Water 4-Dimethylphenol, Water Methyl-4,6-dinitrophenol, Water Nitrophenol, Water	1.87716 2.13328 QC Result 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	QC Result	5.000000 5.000000	37.5 42.7 03/23/	10-92 20-83 2004:: 1531
ME Method Blank Parameter/Test Description enaphthene, Water enaphthylene, Water thracene, Water nzo(a)anthracene, Water s(2-ethylhexyl)phthalate, Water Chloronaphthalene, Water rysene, Water benzofuran, Water -n-butyl Phthalate, Water uoranthene, Water worene, Water Methylnaphthalene, Water phthalene, Water Nitrosodiphenylamine, Water enanthrene, Water rene, Water 4-Dimethylphenol, Water Methyl-4,6-dinitrophenol, Water Nitrophenol, Water	1.87716 2.13328 QC Result 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	QC Result	5.000000 5.000000	37.5 42.7 03/23/	10-92 20-83 2004:: 1531
MB Method Blank Parameter/Test Description enaphthene, Water enaphthylene, Water thracene, Water nzo(a)anthracene, Water s(2-ethylhexyl)phthalate, Water Chloronaphthalene, Water rysene, Water benzofuran, Water -n-butyl Phthalate, Water uoranthene, Water uoranthene, Water worene, Water Methylnaphthalene, Water phthalene, Water trobenzene, Water Nitrosodiphenylamine, Water enanthrene, Water rene, Water 4-Dimethylphenol, Water Methyl-4,6-dinitrophenol, Water	1.87716 2.13328 QC Result 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	QC Result	5.000000 5.000000	37.5 42.7 03/23/	10-92 20-83 2004:: 1531
Method Blank Parameter/Test Description enaphthene, Water enaphthylene, Water thracene, Water nzo(a)anthracene, Water s(2-ethylhexyl)phthalate, Water Chloronaphthalene, Water rysene, Water benzofuran, Water -n-butyl Phthalate, Water uoranthene, Water uorene, Water Methylnaphthalene, Water phthalene, Water Nitrosodiphenylamine, Water enanthrene, Water rene, Water 4-Dimethylphenol, Water Methyl-4,6-dinitrophenol, Water Nitrophenol, Water	1.87716 2.13328 QC Result 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	QC Result	5.000000 5.000000	37.5 42.7 03/23/	10-92 20-83 2004:: 1531
ME Method Blank Parameter/Test Description enaphthene, Water enaphthylene, Water thracene, Water nzo(a)anthracene, Water s(2-ethylhexyl)phthalate, Water Chloronaphthalene, Water rysene, Water benzofuran, Water -n-butyl Phthalate, Water uoranthene, Water worene, Water Methylnaphthalene, Water phthalene, Water Nitrosodiphenylamine, Water enanthrene, Water rene, Water 4-Dimethylphenol, Water Methyl-4,6-dinitrophenol, Water Nitrophenol, Water	1.87716 2.13328 QC Result 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	QC Result	5.000000 5.000000 96166 True Value Orig.	37.5 42.7 03/23/	10-92 20-83 2004:: 1531
Method Blank Parameter/Test Description enaphthene, Water enaphthylene, Water thracene, Water nzo(a)anthracene, Water s(2-ethylhexyl)phthalate, Water Chloronaphthalene, Water rysene, Water benzofuran, Water -n-butyl Phthalate, Water uoranthene, Water uorene, Water Methylnaphthalene, Water phthalene, Water Nitrosodiphenylamine, Water enanthrene, Water rene, Water 4-Dimethylphenol, Water Methyl-4,6-dinitrophenol, Water Nitrophenol, Water	1.87716 2.13328 QC Result 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	QC Result	5.000000 5.000000 96166 True Value Orig.	37.5 42.7 03/23/	10-92 20-83 2004:: 1531

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Job Number.: 270409	QUALITY	CONTROL	RESULT		Date.: 04/06	5/2004	
CUSTOMER: ERM Southwest, Inc Houston	PROJEC	CT: UPRR-HWPW-00	014419 60	ATTN:			
QC Type Description	l	Reag. Code	Lab I	D Diluti	on Factor	Date	Time
MS Matrix Spike		SVS021204C	270409-4			03/23/2004	170′
Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	: * Limits	
Acenaphthene, Water Acenaphthylene, Water Anthracene, Water Benzo(a)anthracene, Water Benzo(a)anthracene, Water Benzo(a)anthracene, Water Benzo(a)anthracene, Water Benzo(a)anthracene, Water Benzofuran, Water Bibenzofuran, Water Bi-n-butyl Phthalate, Water Bluoranthene, Water Bluorene, Water Bentylnaphthalene, Water Wathylnaphthalene, Water Wathylnaphthalene, Water Benzofuran, Water Benzo	6.90373 3.84966 4.95765 4.45173 3.97167 3.05351 4.70923 4.75508 4.95292 5.27425 5.59556 3.23676 5.56610 3.11495 4.11035 4.35245 5.18402 2.52253 6.14786 3.24434 1.58994		5.000000 5.000000 5.000000 5.000000 5.000000 5.000000 5.000000 5.000000 5.000000 5.000000 5.000000 5.000000 5.000000 5.000000 5.000000 5.000000 5.000000 5.000000 5.000000 5.000000	1.38836 0.16065 0.52112 0 0.23155 0.26056 0.19680 0.17701 0 1.38780 0 0	110 77 96 89 69 61 94 102 108 65 84 62 82 87 104 50 123 65 32	46-11 30-13 30-13 60-14 60-14 30-13 30-13 30-13 30-13 30-13 30-13 30-13 30-13 30-13 10-80 10-11	
MSD Matrix Spike Duplicate	OC Booult	SVS021204C QC Result	270409-4 True Value	Orig. Value	Calc. Result	03/23/2004	**. +*:*:
Parameter/Test Description Acenaphthene, Water	_	6.90373	5.000000	1.38836	102	t * Limits 	
Acenaphthylene, Water	3.76090	3.84966	5.000000	0	5.8 75	31.0 30.0-13	
anthracene, Water	4.94630	4.95765	5.000000	0.16065	2.3 96	50.0 30.0-13	0.0
Jenzo(a)anthracene, Water	4.12586	4.45173	5.000000	0	0.2 83	50.0 60.0-14	0.0
ois(2-ethylhexyl)phthalate, Water	3.77883	3.97167	5.000000	0.52112	7.6 65	30.0 60.0-14	0.0
-Chloronaphthalene, Water	3.71892	3.05351	5.000000	0	5.0 74	30.0 30.0-13	0.0
Chrysene, Water	4.80024	4.70923	5.000000	. 0	19.7 96	50.0 30.0-13	0.0
ibenzofuran, Water	4.74833	4.75508	5.000000	0.23155	1.9 90	50.0 30.0-13	0.0
i-n-butyl Phthalate, Water	4.61160	4.95292	5.000000	0.26056	0.1 87	50.0 30.0-13	0.0
luoranthene, Water	5.02675	5.27425	5.000000	0.19680	7.1 . 97	50.0 30.0-13	0.0
luorene, Water	5.21225	5.59556	5.000000	0.17701	4.8 101	50.0 30.0-13	0.0
-Methylnaphthalene, Water	3.78629	3.23676	5.000000	0	7.1 76	50.0 60.0-14	0.0
aphthalene, Water	6.66547	5.56610	5.000000	1.38780	15.6 106	30.0 30.0-13	0.0
itrobenzene, Water	3.57155	3.11495	5.000000	0	18.0 71	50.0 30.0-13	0.0
	e u u	Page 59	* %=% REC,	R=RPD, A=ABS (13.7 Diff., D=% D	50.0 iff.	



Job Number.: 270409	QUALITY	CONTROL	RESULT		Date.: 04/0	5/2004	
CUSTOMER: ERM Southwest, Inc Houston	PROJEC	T: UPRR-HWPW-0	014419 60	ATTN:			řův.
QC Type Description		Reag. Code	Lab I	D Dilut	ion Factor	Date 1	Time
MSD Matrix Spike Duplicate		svs021204c	270409-4			03/23/2004	1731
Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Resul	t * Limits	F
Nitrosodiphenylamine, Water	4.03014	4.11035	5.000000	0	81	30.0-130	0.0
nenanthrene, Water	4.14141	4.35245	5.000000	0	2.0 83	50.0 30.0-130	0.0
yrene, Water	4.93480	5.18402	5.000000	0	5.0 99	50.0 26.0-115	5.0
,4-Dimethylphenol, Water	2.78238	2.52253	5.000000	0	4.9 56	31.0 30.0-130	0.0
-Methyl-4,6-dinitrophenol, Water	5.12943	6.14786	5.000000	0	9.8 103	50.0 30.0-130	
. ,					18.1	50.0	
-Nitrophenol, Water	2.93516	3.24434	5.000000	0	59 10.0	10.0-80. 50.0	
nenol, Water	1.93967	1.58994	5.000000	0	39 19.8	10.0-112 23.0	2.0
Test Method: SW-846 8260B Method Description.: Volatile Organics			ug/ : 96172	'L	Analys	t: ydy	
LCS Laboratory Control Sample		VS030504E				03/18/2004	1129
Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Resul	t * Limits	F
enzene, Water	46.8156		50.00	ND	93.6	68-12	
hlorobenzene, Water ,2-Dichloroethane, Water	51.4188 53.1809	•	50.00 50.00	ND ND	102.8 106.4	65-129 65-13	
thylbenzene, Water	50.1712		50.00	ND	100.3 95.9	64-13	
ethylene Chloride, Water oluene, Water	47.9268 49.4359		50.00 50.00	ND ND	98.9	54-13: 63-12	
ylenes (total), Water	153.834		150.0	ND	102.6	37-16	1
LCS Laboratory Control Sample		VS031904E				03/19/2004	1128
Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Resul	t * Limits	F
enzene, Water	48.4764	• 1	50.00	ND	97.0	68-12	
hlorobenzene, Water ,2-Dichloroethane, Water	50.3633 53.0376		50.00 50.00	, ND	100.7 106.1	65-129 65-13	
thylbenzene, Water	50.0397		50.00	ND	100.1 ~	64-13	2
ethylene Chloride, Water oluene, Water	49.1408 48.7155		50.00 50.00	3.63226 ND	98.3 97.4	54-13: 63-12	
ylenes (total), Water	150.042		150.0	ND	100.0	37-16	
		V\$030504C				03/18/2004	1318
MB Method Blank					<u></u>	t * Limits	
MB Method Blank Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Resul		
Parameter/Test Description	ND -	QC Result	True Value	Orig. Value	Calc. Resul		
Parameter/Test Description enzene, Water hlorobenzene, Water ,2-Dichloroethane, Water	 -	QC Result	True Value	Orig. Value	Calc. Resul		
Parameter/Test Description enzene, Water hlorobenzene, Water	ND	QC Result	True Value	Orig. Value	Calc. Resul	C Limits	<u>_</u>
Parameter/Test Description enzene, Water hlorobenzene, Water ,2-Dichloroethane, Water	ND	QC Result		Orig. Value R=RPD, A=ABS			



	Job Number.: 270409	QU	ALITY	CONTROL		ESULT	S		Date.: 04/0	6/200	4	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
QC Type	Southwest, Inc Houston Description		PROJEC	T: UPRR-HWPW-0 Reag. Code	0000000000	9 60 Lab	ID	ATTN: Dilut	ion Factor	Da	te 1	Time
		viva autoria			00 00000		vo ja velo secono	l Esterotopologico				
мв 1	Method Blank			VS030504C						03/1	8/2004	131
	ter/Test Description	QC	Resul t	QC Result	True	• Value	Orig.	Value	Calc. Resul	t * — – -	Limits	
ethylene Chlor bluene, Water denes (total)	•		ND ND ND	i						r*.		
MB I	Method Blank			VS031904C						03/1	9/2004	122
Parame	ter/Test Description	QC	Resul t	QC Result	True	Value	Orig.	Value	Calc. Resul	t *	Limits	
enzene, Water Norobenzene, N 2-Dichloroeth Hylbenzene, Wa thylene Chlor Nuene, Water Venes (total)	ane, Water ater ide, Water		ND ND ND ND 3.63226 ND ND									
MS I	Matrix Spike			VS030504E		270152-1		20.00		gfanger eigag	8/2004	165
Parame	ter/Test Description	QC	Result	QC Result		Value	Orig.		Calc. Resul	t * 	Limits	
nzene, TCLP lorobenzene, 2-Dichloroeth			51.1606 46.1828 52.1319			50.00 50.00 50.00	NI NI		93 92 104	;	63-123 61-126 66-13	6
MS J	Matrix Spike			VS031904E		269995-1]	20.00	0000	03/1	9/2004	131
Parame	ter/Test Description	QC	Result	QC Result	True	Value	Orig.	Value	Calc. Resul	t *	Limits	
enzene, TCLP lorobenzene, 2-Dichloroeth			52.6688 53.8819 58.4475			50.00 50.00 50.00	NI Ni	D	105 108 117		63-123 61-126 66-135	6
MSD	Matrîx Spike Duplicate			V\$030504E		270152-1		20.00	0000	03/1	8/2004	172
Parame	ter/Test Description	QC	Result	QC Result	True	e Value	Orig.	Value	Calc. Resul	t *	Limits	
nzene, TCLP			51.8072	51.1606		50.00		4.68733	94		63.2-123 30.0	3.2
lorobenzene,	TCLP		45.5329	46.1828		50.00	N	D	91 1.4		61.2-125 30.0	5.8
2-Dichloroeth	ane, TCLP		50.0763	52.1319		50.00	Ni	D	100		66.4-135 30.0	5.0
										•		

Carte Company of the Contract

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* %=% REC, R=RPD, A=ABS Diff., D=% Diff.



, Job Numi	ber.: 270409	QUALITY	CONTRO	L RESUL		t Date.: 04/06	/2004
CUSTOMER: ERM Southwe	est, Inc Houston	PROJ	ECT: UPRR-HWPW-	0014419 60	ATTN:		
QC Type	Description		Reag. Cod	e Lab	ID Dilu	tion Factor	Date Time
MSD Matrix	Spike Duplicate		VS031904E	269995-	1 20.0	0000	03/19/2004 1343
Parameter/Tes	t Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	* Limits F
Benzene, TCLP		52.0050	52.6688	50.00	ND	104	63.2-123.2
Chlorobenzene, TCLP		52.8504	53.8819	50.00	, ND	1.3 106 1.9	30.0 61.2-125.8 30.0
,2-Dichloroethane, TC	LP .	58. <i>7</i> 398	58.4475	50.00	ND	117 0.5	66.4-135.0 30.0
PB Prep. B	lank		VS031904C		20.0	0000	03/19/2004 1155
Parameter/Tes	t Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	: * Limits F
enzene, TCLP hlorobenzene, TCLP ,2-Dichloroethane, TC thylbenzene, TCLP lethylene Chloride, TC oluene, TCLP (ylenes (total), TCLP		ND ND ND ND ND ND					

Page 62 * %=% REC, R=RPD, A=ABS Diff., D=% Diff.



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u				URROGA	TE RE	COYERI	ES R	EPOR			
		Job Num	ber.: 270409						·	ort Date.: 04/06/	2004
<u></u>	CUSTOMER:	ERM Southw	est, Inc Houstor	ı	PROJECT: U	PRR-HWPW-001	4419 60		ATTN	l: Chris Young	
	1	hod ch(s)	: Volatile Organic : 96172	s			d Code Matrix	.: 8260 .: Water		Prep Batch: Equipment Code:	
П	Lab ID	DT S	ample ID			Date	12DCED	BRFLBE	DBRFLM	TOLD8	· · · · · · · · · · · · · · · · · · ·
Ц	9617221 9617221	MB	UL O .1040/	·		03/18/2004 03/18/2004	112.3 117.7 109.7	100.8 102.9 99.9	118.5 120.6 114.9	110.4 110.9 108.8	•
П	270409- 1 270409- 2 270409- 3	F	W-9-1SA04 B-031504-1SA04 W-4-1SA04			03/18/2004 03/19/2004 03/18/2004	110.5 107.6	93.2 103.0	115.9 113.8	109.2 107.3	
u	270409- 4 270409- 5	M	W-11A-1SA04 W-11B-1SA04	· .	. '	03/18/2004 03/19/2004	110.7 110.8	96.1 95.1	116.8 114.3	108.9 104.0	
	270409- 6 270409- 7 270409- 8	' ' M	IW-10B-1SA04 IW-10BD-1SA04 'B01-1SA04			03/19/2004 03/19/2004 03/19/2004	108.1 108.7 109.6	95.2 95.3 95.4	114.1 115.3 115.2	104.3 105.8 106.3	• • • • • •
	270409- 9 270409- 10	ı M	W-10A-1SA04 W-7-1SA04			03/19/2004 03/19/2004	107.1 110.0	93.3 95.1	115.1 115.2	105.2 106.0	
	270409- 11 270409- 12 270409- 13	P	-10-1SA04 -10D-1SA04 W-8-1SA04			03/19/2004 03/19/2004 03/19/2004	111.9 110.7 107.1	94.8 96.7 97.6	115.1 113.5 109.5	105.6 105.5 108.5	
П	270409- 14 96172221	LCS	W-5-1SA04		-1	03/19/2004 03/19/2004	111.4 113.8	95.3 101.0	116.2 114.9	107.6 110.1	
Ц	96172221 Test	MB Test Descr	intion		Limits	03/19/2004	117.3	102.2	119.1	109.0	
n	12DCED	1,2-Dichlo	proethane-d4	·-····································	70 - 13						
บ	BRFLBE DBRFLM TOLD8		orobenzene oromethane		70 - 13 70 - 13 70 - 13	0	•			,	
Π											
u	1	hod ch(s)	: Volatile Organio : 96172	:s 			d Code Matrix			Prep Batch: Equipment Code:	
\prod	Lab ID	DT S	ample ID		<u>.</u>	Date	12DCED		DBRFLM	TOLD8	·
_	9602321 269995- 1 269995- 1	MS D	DELISTING WASTE STR DELISTING WASTE STR			03/19/2004 03/19/2004 03/19/2004	114.8 114.5 115 0	97.7 98.7 99.0	115.7 121.8 118.3	109.1 108.8 107.7	
	270152- 1	MS A	ASAP #1 ASAP #1			03/18/2004 03/18/2004	110.2 108.4	97.2 96.4	114.8 115.3	105.2 106.4	
П	Test	Test Descr	iption	· · · · · · · · · · · · · · · · · · ·	Limits						
	12DCED BRFLBE	4-Bromoflu	oroethane-d4 Norobenzene		70 - 13 70 - 13	0					
П	DBRFLM TOLD8	Dibromoflu Toluene-d8	oromethane B		70 - 13 70 - 13						
L											
Π											•
u						•					
						Page 47					

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SURROGATE RECOVERIES REPORT

Job Number.: 270409

Report Date.: 04/06/2004

CUSTOMER: 483648

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

	od h(s)	: Semivolatile: 96428 96568	Organics,	Low Leve	:L .			.: 8270L .: Water			tch: ent Code:	96166 EGCMS07	
Lab ID	D.	Sample ID		٠		Date	246TBP	2FLUBP	2FLUPH	NITRD5	PHEND6	TERD14	
270409- 1 270409- 2 270409- 4 270409- 4 270409- 5 270409- 7 270409- 7 270409- 10 270409- 11 270409- 12 270409- 12 270409- 13 270409- 13 270409- 14 96166121	MSD	MW-9-1SA04 FB-031504-1SA04 MW-4-1SA04 MW-11A-1SA04 MW-11A-1SA04 MW-11A-1SA04 MW-10B-1SA04 MW-10BD-1SA04 MW-10BD-1SA04 MW-10A-1SA04 P-10-1SA04 P-10D-1SA04 P-10D-1SA04 P-10D-1SA04 MW-8-1SA04 MW-8-1SA04				03/23/2004 03/23/2004 03/23/2004 03/23/2004 03/23/2004 03/23/2004 03/23/2004 03/23/2004 03/23/2004 03/23/2004 03/23/2004 03/23/2004 03/23/2004 03/23/2004 03/23/2004 03/23/2004 03/23/2004 03/23/2004 03/23/2004 03/23/2004	123.0 111.5 139.6K 119.1 133.4K 100.2 129.7K 121.5 115.9 120.2 148.1K 120.4 119.5 39.0 0.0d 119.5 116.7 127.1K 117.7	75.6 86.4 83.7 82.8 68.6 85.1 76.4 86.9 81.9 58.6 69.4 56.7 75.7 78.0 42.8d 69.1 52.1 91.8 81.8	42.3 34.2 35.5 47.8 31.4 45.0 53.7 37.5 40.2 31.5 32.4 33.6 33.8 41.3 39.2 40.1 44.6 50.9 46.4	76.8 89.4 86.0 74.7 65.2 84.8 77.8 83.8 87.7 84.2 83.4 78.3 82.0 80.7 86.1 80.1 84.8 86.9 81.0	25.8 30.4 24.6 36.5 30.8 40.4 21.2 23.8 23.2 20.4 20.8 24.7 26.1 25.5 22.4 21.6 37.0 33.5	93.8 105.3 99.0 105.5 106.5 101.0 99.8 94.0 92.7 104.2 93.8 96.1 103.6 81.4 81.4 92.8 109.9 101.1	
2FLUBP 2FLUPH NITRD5	2,4,6- 2-Fluo 2-Fluo Nitrobe Phenol	escription Tribromophenol Trobiphenyl Trophenol Trophenol Trophenol Trophenol Trophenol Trophenol Trophenol Trophenol Trophenol		:	10 - 12 43 - 11 21 - 10 35 - 11 10 - 94 33 - 14	3 6 0 4							



Fig. 18 Stage SURROGATE RECOVERIES REPORT Job Number.: 270409 Report Date.: 04/06/2004 CUSTOMER: 483648 PROJECT: UPRR-HWPW-0014419 60 ATTN: Chris Young Method.....: Semivolatile Organics - SIM Analysis Method Code...: 8270SI Prep Batch...: 96167 Batch(s)..... 96918 Test Matrix...: Water Equipment Code: EGCMS08 Lab ID DT Sample ID Date 246TBP 2FLUBP NITRD5 TERD14 03/26/2004 93.3 76.5 74.5 86.9 270409-MW-9-1SA04 03/26/2004 56.0 86.6 89.5 89.4 270409-2 FB-031504-1SA04 94.2 85.1 03/26/2004 86.6 270409-3 86.3 MW-4-1SA04 270409-MW-11A-1SA04 03/26/2004 106.5 70.1 75.4 91.7 97.4 03/26/2004 77.8 73.4 89.0 270409-5 MW-11B-1SA04 270409-5 MS MW-11B-1SA04 03/26/2004 92.0 73.3 74.4 81.6 81.2 74.5 270409-5 MSD MW-11B-1SA04 03/26/2004 71.0 71.4 03/26/2004 83.8 83.1 95.3 270409-MW-10B-1SA04 74.7 270409-03/26/2004 95.1 82.1 87.7 84.3 7 MW-10BD-1SA04 101.1 85.1 03/26/2004 65.9 84.3 270409-9 MW-10A-1SA04 270409- 10 MW-7-1SA04 03/26/2004 79.4 57.7 86.2 80.9 79.2 03/26/2004 88.9 76.7 P-10-1SA04 64.4 270409- 11 87.8 83.3 83.9 84.2 270409- 12 P-10D-1SA04 03/26/2004 MW-8-1SA04 03/26/2004 95.0 63.9 80.2 87.0 270409- 13 89.4 87.3 03/27/2004 88.0 270409- 14 52.5 MW-5-1SA04 961671--21 LCS 03/26/2004 82.3 79.3 80.6 82.8 03/26/2004 82.5 77.4 91.8 961671--21 MB 76.8 Test Description Limits Test 10 - 123 246TBP 2,4,6-Tribromophenol 43 - 116 2FLUBP 2-Fluorobiphenyl 35 - 114 33 - 141 Nitrobenzene-d5 NITRD5 TERD14 Terphenyl-d14



QUALITY ASSURANCE METHODS

REFERENCES AND NOTES

Report Date: 04/06/2004

REPORT COMMENTS

- 1) All pages of this report are integral parts of the analytical data. Therefore, this report should be reproduced only in its entirety.
- 2) Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.
- 3) According to 40CFR Part 136.3, pH, Chlorine Residual, and Dissolved Oxygen analyses are to be performed immediately after aqueous sample collection. When these parameters are not indicated as field,(e.g. pH Field) they were not analyzed immediately, but as soon as possible on laboratory receipt.
- 4) For all USACE projects, the QC limits are based on "mean +/- 2 sigma", which are the warning limits.

General Information:

- Cresylic Acid is the combination of o,m and p-Cresol. The combination is reported as the final result.
- m-Cresol and p-Cresol co-elute. The result of the two is reported as either m&p-cresol or as p-cresol.
- m-Xylene and p-Xylene co-elute. The result of the two is reported as m.p-Xylene.
- N-Nitrosodiphenylamine decomposes in the gas chromatograph inlet forming dipheylamine and, consequently, may be detected as diphenylamine.
- Methylene Chloride and Acetone are recognized potential laboratory contaminants. Its presence in the sample up to five times the amount reported in the blank may be attributed to laboratory contamination.
- Trimethysilyl(Diazomethane) is used to esterify acid herbicides in Method SW-846 8151A.
- For Inorganic analyses, duplicate QC limits are determined as follows: If the sample result is less than
 or equal to 5 times the reporting limit, the RPD limit is equal to the reporting limit. If the sample
 result is greater than 5 times the reporting limit, the RPD limit is the method defined RPD.

Explanation of Qualifiers:

- U This qualifier indicates that the analyte was analyzed but not detected.
- J (Organics only) This qualifier indicates that the analyte is an estimated value between the RL and the MDL.
- B (Inorganics only) This Qualifier indicates that the analyte is an estimated value between the RL and the MDL.
- N (Organics only) This flag indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic charachterization of a TIC, such as "chlorinated hydrocarbon", the "N" flag is not used.

Explanation of General QC Outliers:

- A Matrix interference present in sample.
- a MS/MSD analyses yielded comparable poor recoveries, indicating a possible matrix interference. Method performance is demonstrated by acceptable LCS recoveries.
- b Target analyte was found in the method blank.
- M QC sample analysis yielded recoveries outside QC acceptance criteria. This sample was reanalyzed.
- L LCS analysis yielded high recoveries, indicating a potential high bias. No target analytes were observed above the RL in the associated samples.
- G Marginal outlier within 1% of acceptance criteria.
- r RPD value is outside method acceptance criteria.
- C Poor RPD values observed due to the non-homogenous nature of the sample.
- O Sample required dilution due to matrix interference.
- D Sample reported from a dilution.
- d Spike and/or surrogate diluted.
- P The recovery of this analyte is outside default QC limits. The data is accepted and will be used to calculate in-house statistical limits.
- E The reported concentration exceeds the instrument calibration.
- F The analyte is outside QC limits. The sample data is accepted since this analyte is not reported in associated samples.
- H Continuing Calibration Verification (CCV) standard is not associated with the samples reported.
- q See the subcontract final report for qualifier explanation.



QUALITY ASSURANCE METHODS

REFERENCES AND NOTES

Report Date: 04/06/2004

W	-	The MS/MSD	recoveries	are (outside	QC	acceptance	criteria	because	the amou	nt :	spiked	is muc	h less	than
		the amount	found in th	e sa	mole.										

K - High recovery will not affect the quality of reported results.

Z - See case narrative.

Explanation of Organic QC Outliers:

- e Method blank analysis yielded phthalate concentrations above the RL. Phthlates are recognized potential laboratory contaminants. Its presence in the sample up to five times the amount reported in the blank may be attributed to laboratory contamination.
- Sample reanalyzed/reextracted due to poor surrogate recovery. Reanalysis confirmed original analysis indicating a possible matrix interference.

Sample analysis yielded poor surrogate recovery.

- R The RPD between the two GC columns is greater than 40% and no anomalies are present. The higher result is reported as per EPA Method 8000B.
- I The RPD between the two GC columns is greater than 40% and anomalies are present. The lower of the two results has been reported.

X - Gaseous compound. In-house QC limits are advisory.

- Y Ketone compounds have poor purge efficiency. In-house QC limits are advisory.
- f Surrogate not associated with reported analytes.

Explanation of Inorganic QC Outliers:

- Q Method blank analysis yielded target analytes above the RL. Associated sample results are greater than 10 times the concentrations observed in the method blank.
- The RPD control limit for sample results less than 5 times the RL is +/- the RL value. Sample and duplicate results are within method acceptance criteria.

e - Serial dilution failed due to matrix interference.

- g Sample result quantitated by Method of Standard Additions (MSA) due to the analytical spike recovery being below 85 percent. The correlation coefficent for the MSA is greater than or equal to 0.995.
- BOD/cBOD seed value is not within method acceptance criteria. Due to the nature of the test method, the sample cannot be reanalyzed.
- BOD/cBOD LCS value is not within method acceptance criteria. Due to the nature of the test method, sample cannot be reanalyzed.
- Sample result quantitated by Method of Standard Additions (MSA) due to the analytical spike recovery being below 85 percent. The correlation coefficient for the MSA is less than 0.995.

Abbreviations:

- Designation given to identify a specific extraction, digestion, preparation, or analysis set. Batch

CCV - Continuing Calibration Verification

- Low level standard check - GFAA, Mercury - Low level standard check - ICP CRA

CRI

Dil Fac - Dilution Factor - Secondary dilution analysis

- Detection Limit Factor DLFac

- Extraction Blank (TCLP, SPLP, etc.) EB

ICAL - Initial Calibration

- Injtial Calibration Blank ICB

- Initial Calibration Verification ICV

- Interference Check Sample A - ICP ISA

- Interference Check Sample B - ICP ISB

- Laboratory Control Duplicate - Laboratory Control Sample LCD LCS

MB - Method Blank

MD Method Duplicate

MDL Method Detection Limit

MS - Matrix Spike



QUALITY ASSURANCE METHODS

REFERENCES AND NOTES

Report Date: 04/06/2004

MSD

- Matrix Spike Duplicate

ND PB

- Not Detected - Preparation Blank

PREPF

- Preparation Factor - Reporting Limit

RI.

- Relative Percent Difference

RPD RRF

RΤ

- Relative Response Factor

- Retention Time

DU

- Duplicate

Method References:

(1) EPA 600/4-79-020 Methods for the Analysis of Water and Wastes, March 1983.

(2) EPA 600/R-94-111 Methods for the Determination of MEtals in Environmental Samples, Supplement I, May

(3) EPA SW846 Test Methods for Evaluating Solid Waste, Third Edition, September 1986; Update I July 1992; Update II, September 1994, Update IIA August 1993; Update IIB, January 1995; Update III, December 1996, Update IVA January 1998, Update IVB November 2000.

(4) Standard Methods for the Examination of Water and Wastewater, 16th Edition (1985), 17th Edition (1989), 18th Edition (1992), 19th Edition (1995), 20th Edition (1998).

(5) HACH Water Analysis Handbook 3rd Edition (1997).

(6) Federal Register, July 1, 1990 (40 CFR Part 136 Appendix A).

(7) Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, 2nd Edition, January 1997.

(8) ASTM Annual Book of Methods (Various Years)

(9) Diagnosis and Improvement of Saline and Alkali Soils, Agriculture Handbook No. 60, United States Department of Agriculture, 1954.



Job	Number: 270409	1 C n	RONI	CLE	Date: (04/06/2004	•	
CUSTOMER: ERM Sou	thwest, Inc Houston PROJE	CT: UPRR-H	WPW-0014	419 60	j	ATTN: Chris You	ng	
Lab ID: 270409-1 METHOD	Client ID: MW-9-1SA04 DESCRIPTION		cvd: 03/	17/2004 PREP BT		Date: 03/15/200		DILUTIO
HETHOS	Data Package Validation Electronic Data Deliverables	1	97333	FREF BI	#(3)	03/06/2004	0000	DILUTION
SW-846 3510C	Extraction (Sep. Funnel) SVOC - SIM	1	96167			03/18/2004	1400	
SW-846 3510C	Extraction (Sep. Funnel) SVOC Low Level	1	96166			03/18/2004	1400	
	GC/MS Semi-Volatile Package Production GC/MS Volatiles Data Package Production	1	96919 96227			03/31/2004 03/22/2004	1800 1500	
SW-846 8270C	Semivolatile Organics - SIM Analysis	i	96918	96167		03/26/2004	1840	1.00000
SW-846 8270C	Semivolatile Organics, Low Level	1	96568	96166		03/23/2004	1801	1.00000
SW-846 8260B	Volatile Organics	1	96172			03/18/2004	2126	1.00000
Lab ID: 270409-2	Client ID: FB-031504-1SA04		cvd: 03/	-		Date: 03/15/200		
METHOD SW-846 3510C	DESCRIPTION Extraction (Sep. Funnel) SVOC - SIM	KUN#	96167	PREP BT	#(5)	DATE/TIME AND 03/18/2004	1400	DILUTIO
SW-846 3510C	Extraction (Sep. Funnel) SVOC Low Level	i	96166			03/18/2004	1400	
SW-846 8270C	Semivolatile Organics - SIM Analysis	i	96918	96167		03/26/2004	1910	1.00000
SW-846 8270C	Semivolatile Organics, Low Level	1	96568	96166	10 m	03/23/2004	1831	1.00000
SW-846 8260B	Volatile Organics	1	96172			03/19/2004	1624	1.00000
ab ID: 270409-3	Client ID: MW-4-1SA04		cvd: 03/			Date: 03/16/200		DILUTIC
METHOD SW-846 3510C	DESCRIPTION Extraction (Sep. Funnel) SVOC - SIM	KUN# 1	96167	PREP BT	#(5)	DATE/TIME AND 03/18/2004	1400	DILUTIO
SW-846 3510C	Extraction (Sep. Funnel) SVOC Low Level	i	96166			03/18/2004	1400	
SW-846 8270C	Semivolatile Organics - SIM Analysis	1	96918	96167		03/26/2004	1939	1.00000
SW-846 8270C	Semivolatile Organics, Low Level	1	96568	96166	•	03/23/2004		1.00000
SW-846 8260B	Volatile Organics	1	96172			03/18/2004	2154	1.00000
ab ID: 270409-4	Client ID: MW-11A-1SA04		cvd: 03/			Date: 03/16/20		NILLITIO
METHOD SW-846 3510C	DESCRIPTION Extraction (Sep. Funnel) SVOC - SIM	1 1	BATCH# 96167	PREP BT	#(5)	DATE/TIME ANA 03/18/2004	1400	DILUTIO
SW-846 3510C	Extraction (Sep. Funnel) SVOC Low Level	i	96166			03/18/2004	1400	
SW-846 8270C	Semivolatile Organics - SIM Analysis	1	96918	96167		03/26/2004	2008	1.00000
SW-846 8270C	Semivolatile Organics, Low Level	1	96568	96166	7 1	03/23/2004	1631	1.00000
SW-846 8260B	Volatile Organics	1	96172		:	03/18/2004	2221	1.00000
ab ID: 270409-5	Client ID: MW-11B-1SA04 DESCRIPTION		cvd: 03/	17/2004 PREP BT	•	Date: 03/16/200		STUITIO
METHOD SW-846 3510C	Extraction (Sep. Funnel) SVOC - SIM	1	96167	FREP DI	#(3)	03/18/2004	1400	DILUTIO
SW-846 3510C	Extraction (Sep. Funnel) SVOC Low Level	i	96166			03/18/2004	1400	
SW-846 8270C	Semivolatile Organics - SIM Analysis	1	96918	96167		03/26/2004	1712	1.00000
SW-846 8270C	Semivolatile Organics, Low Level	1	96568	96166		03/23/2004	1931	1.00000
SW-846 8260B	Volatile Organics	1	96172			03/19/2004	1718	1.00000
.ab ID: 270409-6 METHOD	Client ID: MW-10B-1SA04 DESCRIPTION			17/2004 PREP BT	•	Date: 03/16/200 DATE/TIME ANA		DILUTIO
SW-846 3510C	Extraction (Sep. Funnel) SVOC - SIM	1	96167	FREE DI	#(J)	03/18/2004	1400	0110110
SW-846 3510C	Extraction (Sep. Funnel) SVOC Low Level	1	96166			03/18/2004	1400	
SW-846 8270C	Semivolatile Organics - SIM Analysis	1		96167		03/26/2004	2037	1.00000
SW-846 8270C SW-846 8260B	Semivolatile Organics, Low Level Volatile Organics	1 1	96568 96172	96166		03/23/2004 03/19/2004	2000 1745	1.00000
ab ID: 270409-7	Client ID: MW-10BD-1SA04	Date Re	cvd: 03/	17/2004	Sample	Date: 03/16/20	04	•
METHOD	DESCRIPTION			PREP BT		DATE/TIME ANA		DILUTIO
SW-846 3510C	Extraction (Sep. Funnel) SVOC - SIM	1	96167		-	03/18/2004	1400	
SW-846 3510C	Extraction (Sep. Funnel) SVOC Low Level	1	96166	0/4/7		03/18/2004	1400	4 00000
SW-846 8270C	Semivolatile Organics - SIM Analysis	1	96918	96167		03/26/2004	2107	1.00000



Job	L A B O R A T O R Number: 270409	т ,Сп	KUNI	CLE	Date: 0	4/06/2004	
STOMER: ERM Sou	rhwest, Inc Houston PROJEC	T: UPRR-H	WPW-0014	419 60	P	TTN: Chris Young	
b ID: 270409-7 METHOD	Client ID: MW-10BD-1SA04 DESCRIPTION	Date Re	cvd: 03/ BATCH#	17/2004 PREP BT		Date: 03/16/2004 DATE/TIME ANALYZED	DILUTION
SW-846 8270C SW-846 8260B	Semivolatile Organics, Low Level Volatile Organics	1 1	96568 96172	96166		03/23/2004 2030 03/19/2004 1812	1.00000 1.00000
ID: 270409-8	Client ID: TB01-1SA04					Date: 03/16/2004	
METHOD SW-846 8260B	DESCRIPTION Volatile Organics	RUN#	96172	PREP BT	#(S)	DATE/TIME ANALYZED 03/19/2004 1651	DILUTION 1.00000
D: 270409-9 METHOD SW-846 3510C	Client ID: MW-10A-1SA04 DESCRIPTION Extraction (Sep. Funnel) SVOC - SIM	RUN# 1	96167	17/2004 PREP BT		Date: 03/16/2004 DATE/TIME ANALYZED 03/18/2004 1400	DILUTION
SW-846 3510C SW-846 8270C	Extraction (Sep. Funnel) SVOC Low Level Semivolatile Organics - SIM Analysis	1 1	96166 96918	96167		03/18/2004 1400 03/26/2004 2136	1.00000
SW-846 8270C SW-846 8260B	Semivolatile Organics, Low Level Volatile Organics	1 1	96568 96172	96166		03/23/2004 2100 03/19/2004 1839	1.00000 1.00000
b ID: 270409-10 METHOD SW-846 3510C	Client ID: MW-7-1SA04 DESCRIPTION Extraction (Sep. Funnel) SVOC - SIM		ecvd: 03/ BATCH# 96167	17/2004 PREP BT		Date: 03/16/2004 DATE/TIME ANALYZED 03/18/2004 1400	DILUTION
SW-846 3510C SW-846 8270C	Extraction (Sep. Funnel) SVOC Low Level Semivolatile Organics - SIM Analysis	1	96166 96918	96167		03/18/2004 1400 03/26/2004 2205	1.00000
SW-846 8270C SW-846 8260B	Semivolatile Organics, Low Level Volatile Organics	i 1	96568 96172	96166		03/23/2004 2130 03/19/2004 1906	1.00000
b ID: 270409-11 METHOD SW-846 3510C	Client ID: P-10-1SA04 DESCRIPTION Extraction (Sep. Funnel) SVOC - SIM		ecvd: 03/ BATCH# 96167	17/2004 PREP BT	•	Date: 03/16/2004 DATE/TIME ANALYZED 03/18/2004 1400	DILUTION
SW-846 3510C SW-846 8270C SW-846 8270C	Extraction (Sep. Funnel) SVOC Low Level Semivolatile Organics - SIM Analysis Semivolatile Organics, Low Level	1 1 1	96166 96918 96568	96167 96166		03/18/2004 1400 03/26/2004 2235 03/23/2004 2200	1.00000
SW-846 8260B	Volatile Organics	1	96172			03/19/2004 1933	1.00000
ab ID: 270409-12 METHOD SW-846 3510C	Client ID: P-10D-1SA04 DESCRIPTION Extraction (Sep. Funnel) SVOC - SIM		ecvd: 03/ BATCH# 96167	17/2004 PREP BT		Date: 03/16/2004 DATE/TIME ANALYZED 03/18/2004 1400	DILUTION
SW-846 3510C SW-846 8270C	Extraction (Sep. Funnel) SVOC Low Level Semivolatile Organics - SIM Analysis	1	96166 96918	96167		03/18/2004 1400 03/26/2004 2304	1.00000
SW-846 8270C	Semivolatile Organics, Low Level	į	96568	96166		03/23/2004 2230	1.00000
SW-846 8270C SW-846 8270C	Semivolatile Organics, Low Level Semivolatile Organics, Low Level	1 1	96568 96568	96166 96166		03/24/2004 1856 03/24/2004 1926	5.00000 20.0000
SW-846 8260B	Volatile Organics	1	96172			03/19/2004 2000	1.00000
ab ID: 270409-13 METHOD	Client ID: MW-8-1SA04 DESCRIPTION			17/2004 PREP BT		Date: 03/16/2004 DATE/TIME ANALYZED	DILUTION
SW-846 3510C . SW-846 3510C	Extraction (Sep. Funnel) SVOC - SIM Extraction (Sep. Funnel) SVOC Low Level	1	96167 96166			03/18/2004 1400 03/18/2004 1400	
SW-846 8270C	Semivolatile Organics - SIM Analysis	i	96918	96167		03/26/2004 1400	1.00000
SW-846 8270C SW-846 8260B	Semivolatile Organics, Low Level Volatile Organics	1 1	96568 96172	96166		03/23/2004 2300 03/19/2004 2027	1.00000 1.00000
ab ID: 270409-14 METHOD SW-846 3510C	Client ID: MW-5-1SA04 DESCRIPTION Extraction (Sep. Funnel) SVOC - SIM		•	17/2004 PREP BT		Date: 03/16/2004 DATE/TIME ANALYZED 03/18/2004 1400	DILUTION
SW-846 3510C SW-846 8270C	Extraction (Sep. Funnel) SVOC Low Level Semivolatile Organics - SIM Analysis	i 1	96166 96918	96167	•	03/18/2004 1400 03/18/2004 1400 03/27/2004 0003	1.00000
SW-846 8270C	Semivolatile Organics, Low Level	i	96568	96166		03/23/2004 2330	1.00000



\$180 900

Job Nu	mber: 270409	LABORATORY	CHRONI	CLE	Date:	04/06/2004		
CUSTOMER: ERM Southw	est, Inc Houston	PROJECT:	UPRR-HWPW-0014	4419 60	,	ATTN: Chris You	ing	
METHOD D	Client ID: MW-5-1SAO4 ESCRIPTION latile Organics		Date Recvd: 03, RUN# BATCH# 1 96172	/17/2004 PREP BT	Sample #(S)	Date: 03/16/20 DATE/TIME AN 03/19/2004	004 IALYZED 2054	DILUTION 1.00000
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						• •		
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ANALYTICAL REPORT

JOB NUMBER: 270473

Prepared For:

ERM Southwest, Inc.- Houston 15810 Park Ten Place Suite 300 Houston, TX 77084

Attention: Chris Young

Date: 04/07/2004

Jkudhadi Signature

Name: Sachin G. Kudchadkar

Title: Project Manager III

E-Mail:

04/08/04

Date

Severn Trent Laboratories 6310 Rothway Drive Houston, TX 77040

PHONE: (713) 690-4444

TOTAL NO. OF PAGES _______

73



04/07/2004

Chris Young ERM Southwest, Inc.- Houston 15810 Park Ten Place Suite 300 Houston, TX 77084

Project: UPRR-HWPW-0014419/60

Project No. : 270473
Date Received : 03/18/2004
STL Job : 270473

Dear Chris Young:

Enclosed are the analytical results for your project referenced above. The following samples are included in the report.

1. MW-3-1SA04

3. MW-01A-1SA04

5. P-11-1SA04

7. P-11 MSD-1SA04

9. TB02-1SA04

2. MW-2-1SA04

4. P-12-1SA04

6. P-11 MS-1SA04

8. FB-031704-1SA04

All holding times were met for the tests performed on these samples.

Enclosed, please find the Quality Control Summary. All quality control results for the QC batch that are applicable to the sample(s) are acceptable except as noted in the QC batch reports.

The test results in this report meet all NELAP requirements for STL Houston's NELAP accredited parameters. Any exceptions to NELAP requirements will be noted and included in a case narrative as a part of this report,

If the report is acceptable, please approve the enclosed invoice and forward it for payment.

Thank you for selecting Severn-Trent Laboratories to serve as your analytical laboratory on this project. If you have any questions concerning these results, please feel free to contact me at any time.

We look forward to working with you on future projects.

Sincerely,

Sachin G. Kudchadkar Project Manager



Table 1 Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	EPA Sample Number	Laboratory Identification	8260B	€ 8270C	Comment
MW-3-1SA04	MW-3-1SA04	270473-1	X	Х	
MW-2-1SA04	MW-2-1SA04	270473-2	X	Х	
MW-01A-1SA04	MW-01A-1SA04	270473-3	Х	Х	
P-12-1SA04	P-12-1SA04	270473-4	Х	Х	
P-11-1SA04	P-11-1SA04	270473-5	Х	X ·	
P-11MS-1SA04	P-11MS-1SA04	270473-6	Х	X	Matrix Spike of sample P-11-1SA04
P-11MSD-1SA04	P-11MSD-1SA04	270473-7	Х	X	Matrix Spike Duplicate of sample P-11-1SA04
FB-031704-1SA04	FB-031704-1SA04	270473-8	Χ.	X	Field Blank
TB02-1SA04	TB02-1SA04	270473-9	Х		Trip Blank

Appendix A Laboratory Data Package Cover Page

This data madrace	consists of:				_			
This data package	consists or.	the laborator	v review checkl	ist, and the follo	owing reportabl	e data:		
	Signature page	of-custody do	y ieview checki	ist, and the form	ownig repermer			
R1	Camana idam	tification cros	roference:					
R2	Sample iden	(analytical day	s-reference,	ch environment	al cample that is	ncludes:		
R3	1 est reports	(analytical da	NITT AC 5 12 o	- теолес 1702	5 Section 5 10	norados.		
			NELAC 3.13 0	r ISO/IEC 1702	S Section 5.10			
•	b) dilution		•					
		tion methods,						
	d) cleanup	methods, and			1 (777.0.)	•		
•				identified comp	pounds (TICs).			
R4		covery data in						
		ted recovery (•			•	
	b) The la	boratory's sur	rogate QC limit	S.				
R5	Test reports	/summary fori	ns for blank san	nples;			*	
R6	Test reports.	summary fori	ns for laborator	y control sampl	es (LCSs) inclu	ding:		
·		iking amounts			-		,	
	b) Calcula	ited %R for ea	ch analyte, and	•				
•	c) The lab	oratory's LCS	QC limits.			•		
R7	Test reports	for project ma	trix spike/matr	ix spike duplica	tes (MS/MSDs)) including:		
	a) Sample	s associated w	ith the MS/MS	D clearly identi	fied, .			
		SD spiking am						
	c) Concer	tration of eacl	n MS/MSD ana	lvte measured is	n the parent and	spiked samples,		
	d) Calcula	ited %Rs and i	relative percent	differences (RP	Ds), and	•		
	e) The lab	oratory's MS/	MSD QC limit	3 : .		v.		
R8	Laboratory	analytical dun	licate (if applica	able) recovery a	nd precision:	•		
. 10	a) the am	ount of analyte	measured in the	e dunlicate.		•		
		culated RPD,		o dupilouio,	~	•	•	
	a) the lab	oratory's OC 1	imits for analyt	ical dunlicates	•	•	•	
D.O.	C) uic lau	oratory's QC i	n limite (MOI s	tour duprioutes.	te for each met	hod and matrix;		
R9	O Other real	iou quantitatic	in minis (MQL)	i) for each analy	, 10 101 04011 111.			
· KI	O Other probl	citis of allottia	ucs. "No" or "Not D	Paviawed (NTR)	' item in laborat	tory review check	list.	•
1.00	e Exception Re	port for every	NO OI NOU	coviewed (111c)	HOM IN ILCOID	.019 10110 011001		
		71 1 . C	411	-ia laharatany d	oto pockoga. Ti	hic data nackage h	as heen	
Release Stat	ement: I am r	esponsible for	ine release of u	ms laboratory u	ata package. 11	his data package h	nethods	
reviewe	ed by the labora	itory and is co	mplete and tech	mically compile	m wim me requ	irements of the n	z I affirm	
used, ex	xcept where no	ted by the labo	bratory in the at	ached exception	n reports. By n	ne signature below	v, i aiimiii	• •
to the b	est of my knov	vledge, all pro	blems/anomalie	s, observed by	ine laboratory a	s having the poter	liai io list and	
affect t	he quality of th	e data, have b	een identified b	y the laboratory	in the Laborato	ory Review Check	iisi, and	
no info	rmation or data	have been kn	owingly withhe	ld that would at	ffect the quality	of the data.		
	•		;	·			•	
Check, if a	pplicable: [] This lab	oratory is an i	n-house labora	atory controlle	ed by the person	•	• •
respon	ding to rule.	The official s	igning the cov	er page of the	rule-required	report (for exam	ple, the	
ΔΡΔΡ) in which the	ese data are u	sed is respons	ible for releasi	ng this data pa	ackage and is by	signature	
offirm	ing the above	releace states	ment is true			· ·	-	
ammi	mg me above	release state	mem is a ue.				,	
		all !) 	Tohor	atory Director	4/0	1 hali	
Norman Flyi		Mary C	my for			<u> </u>	107 ·	
Name (Print	ed) . S	ignatyře\	/ \	Offici	al Title (printed	l) Date		
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Lab	orato	ry Name: STL-Houston LRC	Date: 04/06/04					
Proi	ect N	Iame: UPRR-HWPW-0014419 60 Labor	ratory Job Number: 270473					
								
			Batch Number(s): 96367-VOA					
#'	A ²	Description		Yes				ER#
•		Chain-of-custody (C-O-C)			#1.25° 5. ***	12%	142	
R1	OI	1 . 1		X				
		Were all departures from standard conditions described in an ex-	ception report?			X		
R2	OI	Sample and quality control (QC) identification		1830 C	(8.%)	0.844	- Sec.	22.
		Are all field sample ID numbers cross-referenced to the laborato	ry ID numbers?	X				
	ļ	Are all laboratory ID numbers cross-referenced to the correspon		X		_		
R3 OI		Test reports		1983		1880 C	1366	85 1 2 3 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3
		Were all samples prepared and analyzed within holding times?		X				
	ł	Other than those results < MQL, were all other raw values brack	eted by calibration standards?	X				
		Were calculations checked by a peer or supervisor?		X				
		Were all analyte identifications checked by a peer or supervisor	, , , , , , , , , , , , , , , , , , , 	X				
	ĺ	Were sample quantitation limits reported for all analytes not dete		X				
~		Were all results for soil and sediment samples reported on a dry		1		X		
		Were % moisture (or solids) reported for all soil and sediment sa				X		
	ĺ	If required for the project, TICs reported?	 	<u> </u>		X	i .	$\overline{}$
R4	0	Surrogate recovery data			330°	100	STATE.	2352
		Were surrogates added prior to extraction?		X				
	·	Were surrogate percent recoveries in all samples within the labor	ratory OC limits?	X		-		
R5	OI	Test reports/summary forms for blank samples		. Tá	Car of	2.00	-35g-1	决 (2)
		Were appropriate type(s) of blanks analyzed?	· · · · · · · · · · · · · · · · · · ·	X				
	•	Were blanks analyzed at the appropriate frequency?		X				
		Were method blanks taken through the entire analytical process,	including preparation and, if	X				
	1	applicable, cleanup procedures?						
		Were blank concentrations < MQL?			Х			1
R6	OI	Laboratory control samples (LCS):				1 Ca.,	200	1 3
		Were all COCs included in the LCS?		्र X	436			
		Was each LCS taken through the entire analytical procedure, inc	luding prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?		X	<u> </u>			
-		Were LCS (and LCSD, if applicable) %Rs within the laboratory	QC limits?	X				
		Does the detectability data document the laboratory's capability				X		
		to calculate the SQLs?		1				l
		Was the LCSD RPD within QC limits?				Х		<u> </u>
R7	ΟĨ	Matrix spike (MS) and matrix spike duplicate (MSD) data				NAK.	ALC:	14.55
		Were the project/method specified analytes included in the MS a	nd MSD?	Х				
		Were MS/MSD analyzed at the appropriate frequency?	· · · · · · · · · · · · · · · · · · ·	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory Q	C limits?	X				·
		Were MS/MSD RPDs within laboratory QC limits?		X	_		\neg	
R8	OI	Analytical duplicate data		1225	COS.		112	to into
		Were appropriate analytical duplicates analyzed for each matrix?				X		
l		Were analytical duplicates analyzed at the appropriate frequency	?			X	\neg	
-		Were RPDs or relative standard deviations within the laboratory	QC limits?			X		
89	OI	Method quantitation limits (MQLs):		S.30	, W. (C.)	<u> </u>	3.83.E	130.35
		Are the MQLs for each method analyte included in the laborator	y data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-	zero calibration standard?	X	$\neg \neg$		_	
ł		Are unadjusted MQLs included in the laboratory data package?		X		$\neg \neg$		
₹10	OI	Other problems/anomalies		7.4°	14 to	'ZŞÇ:	JAN.	
		Are all known problems/anomalies/special conditions noted in the	is LRC and ER?	X				
-		Were all necessary corrective actions performed for the reported		X				
- 1		Was applicable and available technology used to lower the SQL		Х	-			
		affects on the sample results?		- 1	. {	- 1	- 1	

^{1.} Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period. = organic analyses; I = inorganic analyses (and general chemistry, when applicable);

- · · ·

NA = Not applicable; NR = Not reviewed; 3.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

A	pper	ndix A (cont'd): Laboratory Review Checklist:	Reportable Data					
Lab	orato	ory Name: STL-Houston LR	C Date: 04/06/04	-				
Pro	ject N	Name: UPRR-HWPW-0014419 60 Lab	poratory Job Number: 270473					
Rev	viewe	er Name: YX	p Batch Number(s): 96367-VOA					
#1	I A ²	Description	<u> </u>	Yes	No	NA ³	NR ⁴	ER#S
<u>S1</u>	OI	Initial calibration (ICAL)			2.5	1365	1.11	14.5
	 - -	Were response factors and/or relative response factors for each a	nalyte within OC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	maryto wami Qo imiio.	$\frac{1}{x}$		 	<u> </u>	
		Was the number of standards recommended in the method used	for all analytes?	X		├	 	 -
	1	Were all points generated between the lowest and highest standards		X	├	 	 	
		Are ICAL data available for all instruments used?	and ased to calculate the curve:	X	-	 	 	├──
	1	Has the initial calibration curve been verified using an appropria	te second source standard?	X			 	├
S2	OI				*policie	3 (1 m)	20080	en Side su v
32			X	wan w	0000-0000		365.	
	}	Was the CCV analyzed at the method-required frequency?	id OC liit-2	$\frac{\hat{x}}{x}$	<u> </u>	 	├─-	 -
		Were percent differences for each analyte within the method-required QC limits?			<u> </u>	 	 	
		Was the ICAL curve verified for each analyte?	COD (MDI)	X	├	172	ļ	├
02	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?		7.7	ļ	X		}	
S3	0	Mass spectral tuning:	 	-	عندند	-		
	1	Was the appropriate compound for the method used for tuning?		X	ļ	<u> </u>	<u> </u>	ļ
	 	Were ion abundance data within the method-required QC limits	<u> </u>	X	ļ	<u> </u>	<u> </u>	<u> </u>
S4			්ථික්	4	a continue		3.5	
	Were IS area counts and retention times within the method-required QC limits?			X	L.			<u> </u>
S5 OI		Raw data (NELAC section 1 appendix A glossary, and section		3	<i>f</i>			2.3
		Were the raw data (for example, chromatograms, spectral data) r		X		<u> </u>		
	ļ	Were data associated with manual integrations flagged on the ra-	w data?	X				
S6	0	Dual column confirmation	•				- 1	
		Did dual column confirmation results meet the method-required	QC?			X		
S7	0	Tentatively identified compounds (TICs):						
,		If TICs were requested, were the mass spectra and TIC data subj	ect to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results:	· · · · · · · · · · · · · · · · · · ·	1216	<u> </u>	a jedini Zastania	310,	
		Were percent recoveries within method QC limits?				X	Ī .	
S9	I	Serial dilutions, post digestion spikes, and method of standar	d additions	100	25.5	430	3.	40,0345
_	·	Were percent differences, recoveries, and the linearity within the		,		X		
S10	OI	Method detection limit (MDL) studies		1.50	1 1	1350 87	Asian.	178.45
		Was a MDL study performed for each reported analyte?		·X		1	-	-
	 	Is the MDL either adjusted or supported by the analysis of DCS	37	X	<u> </u>	├	_	
S11	OI	Proficiency test reports:	<u> </u>	i idi.	2 Va	185916	\$50 C.	250 pro#65
_	1 -	Was the laboratory's performance acceptable on the applicable p	roficiency tests or evaluation studies?	X	77,200.	-108/15-15*N		1
S12	OI	Standards documentation	· ·	1 10	52176	क्षेत्र -	3463	
	 -	Are all standards used in the analyses NIST-traceable or obtained	d from other appropriate sources?	X	unan u mit	1000000	CONTRACT	Section.
S13	OI	Compound/analyte identification procedures	a from other appropriate sources:	1 /2	11.5	N.,	1000	
	 -	Are the procedures for compound/analyte identification document	nted?	X			A 100 M	
\$14	OI	Demonstration of analyst competency (DOC)	dicu:	100	183	N. C. No.	11.04 15.0	* 21 * yz 1 ;
1	 	Was DOC conducted consistent with NELAC Chapter 5C or ISO)/IEC 42	X	1-2-			
		Is documentation of the analyst's competency up-to-date and on		X		₩-	 	-
215	OI	Verification/validation documentation for methods (NELAC	Chan 5 or ISO/IBC 17025 Section 5	^-		 	1.1.4 %.	
313	01			37			-344-00-00-2	<u> </u>
~-		Are all the methods used to generate the data documented, verifi	ed, and vandated, where applicable?	X	<u> </u>			
516	OI	Laboratory standard operating procedures (SOPs):		0,00°,00°,00°,00°,00°,00°,00°,00°,00°,0				
		Are laboratory SOPs current and on file for each method perform	ned?	X	1	1	ĺ	'

Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).

³ NA = Not applicable.

⁴ NR = Not Reviewed.

⁵ ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appe	Appendix A (cont'd): Laboratory Review Checklist: Exception Reports							
Labora	Laboratory Name: STL-Houston LRC Date: 04/06/04							
Project	Name: UPRR-HWPW-0014419 60	Laboratory Job Number: 270473						
Review	er Name: YX	Prep Batch Number(s): 96367-VOA						
ER#1	DESCRIPTION							
1	Methylene chloride was detected above the MQL in the method blank analyzed on 03/22/04 at 13:16. Since methylene							
	chloride was not detected in any samples associated with this method blank, no corrective action was required.							
	ER# = Exception Report identification number (an Exception Report should be completed for an item if							

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Ap	pen	dix A (cont'd): Laboratory Review Checkli	st: Reportable Data					
Lab	orator	ry Name: STL-Houston LRC	Date: 04/07/04					
Proj	ect N	ame: UPRR-HWPW-0014419 60 Labo	oratory Job Number: 270473					
Rev	iewer	Name: ACN Prep	Batch Number(s): 96171-SV SIM					
#1	A ²	Description		Yes	No	NA ³	NR ⁴	ER#5
		Chain-of-custody (C-O-C)		\$.		1 2 2 2 1 2 5 1	374	135
R1	Oī	Did samples meet the laboratory's standard conditions of sam	onle acceptability upon receipt?	X				
	01	Were all departures from standard conditions described in an				X		
R2	OI	Sample and quality control (QC) identification	oxooption roport.	5,543	78.20	730	24/-	a ka zalsi
102	OI	Are all field sample ID numbers cross-referenced to the labor	rotory ID numbers?	X	7.8.2(0)	4,55,46	4,363.5.5	\$1500°
]	Are all laboratory ID numbers cross-referenced to the correspondence of the corresponden		X	<u> </u>			
R3	OI	Test reports	boliding QC data:	<u>^</u>	18/5		- A-1	Mag Fig.
-	01	Were all samples prepared and analyzed within holding time		X	-	1 1 1 1 1 1	20.67	17 M
	1	Other than those results < MQL, were all other raw values br		$\frac{\lambda}{X}$				- -
		Were calculations checked by a peer or supervisor?	acketed by carroration standards.	$\frac{x}{x}$				
	İ	Were all analyte identifications checked by a peer or supervision.	sor?	$\frac{x}{x}$				
	1	Were sample quantitation limits reported for all analytes not		<u>^</u>			-	
	1	Were all results for soil and sediment samples reported on a		Λ.	_	х	-	
	Were % moisture (or solids) reported for all soil and sediment samples?					X		
		If required for the project, TICs reported?	it ourrepress.	-		X		
R4	0				150	5/8/89	ى∜ۋۇرىد.	
	<u> </u>	Were surrogates added prior to extraction?		X			•	
		Were surrogate percent recoveries in all samples within the la	aboratory OC limits?	X		 		
R5	OI	Test reports/summary forms for blank samples	, , , ,	N2 (5)	. 18.3.	18,300 A	373	3.42
	-	Were appropriate type(s) of blanks analyzed?		$\overline{\mathbf{x}}$				
		Were blanks analyzed at the appropriate frequency?		X				
	ĺ	Were method blanks taken through the entire analytical processing	ess, including preparation and, if	X				
		applicable, cleanup procedures?	Special states and			ĺ		
	1	Were blank concentrations < MQL?		X				
R6	OI	Laboratory control samples (LCS):	· ·		13%	Ŋij¥,	डेक्ट्रेड् _.	0.30
		Were all COCs included in the LCS?		X				
		Was each LCS taken through the entire analytical procedure,	including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?		X				
		Were LCS (and LCSD, if applicable) %Rs within the laborat	ory QC limits?			X		_ ·
		Does the detectability data document the laboratory's capabil	ity to detect the COCs at the MDL			Х		
		used to calculate the SQLs?						
		Was the LCSD RPD within QC limits?				X		
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) dat			270	- 18 A	711/2	少大的
		Were the project/method specified analytes included in the M	IS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?		<u>X</u>				
		Were MS (and MSD, if applicable) %Rs within the laborator	y QC limits?		X			<u> </u>
		Were MS/MSD RPDs within laboratory QC limits?		<u>X</u>		<u> </u>		
R8	OI	Analytical duplicate data		7. S.	100 mg/	::**	3/维制	S2458
		Were appropriate analytical duplicates analyzed for each mat				X		
		Were analytical duplicates analyzed at the appropriate freque				Х		
		Were RPDs or relative standard deviations within the laborat	ory QC limits?			X.		
R9	OI	Method quantitation limits (MQLs):		-réA	13-15	- \$ ⁶ \$: 35	SHER
		Are the MQLs for each method analyte included in the laborate		<u>X</u>				
		Do the MQLs correspond to the concentration of the lowest r		X	<u> </u>	<u> </u>		
		Are unadjusted MQLs included in the laboratory data packag	e?	X		ļ		
R10	OI .	Other problems/anomalies	·		\$\$\$.2	SAS	A	16thill
		Are all known problems/anomalies/special conditions noted in		<u>X</u>	<u> </u>	<u> </u>		
		Were all necessary corrective actions performed for the report		X	<u> </u>	<u> </u>		
		Was applicable and available technology used to lower the Staffects on the sample results?	QL to minimize the matrix interference	Х				

^{1.} Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

⁼ organic analyses; I = inorganic analyses (and general chemistry, when applicable);

^{3.} NA = Not applicable;

NR = Not reviewed;

^{4.} 5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

	orato	ry Name: STL-Houston LRC	Date: 04/07/04					
Pro	ject N	Vame: UPRR-HWPW-0014419 60 Labo	oratory Job Number: 270473					
Rev	iewe	r Name: ACN Prep	Batch Number(s): 96171-SV SIM				_	-
#1	A ²	Description		Yes	No	NA ³	NR ⁴	ER#5
<u>S1</u>	OI	Initial calibration (ICAL)			—-		3655.5	4149
<u> </u>	-	Were response factors and/or relative response factors for each an	alvte within OC limits?	х		.0.000000		Appendig 4
		Were percent RSDs or correlation coefficient criteria met?	aryto widini OC ining:	X	_	 	<u> </u>	
	İ	Was the number of standards recommended in the method used for	ar all analytes?	X	-		 -	1
		Were all points generated between the lowest and highest standard		X	 	 		
		Are ICAL data available for all instruments used?	ded to calculate the curve.	X	┢	 -	<u> </u>	
		Has the initial calibration curve been verified using an appropriate	s second source standard?	$\frac{\lambda}{X}$	 	 	-	
S2 OI		Initial and continuing calibration verification (ICCV and CCV		FL	100	272	V2.5	
	<u> </u>	Was the CCV analyzed at the method-required frequency?	y and continuing cantilation	X	. Same	22.50	2000	Traucas:
	Ì	Were percent differences for each analyte within the method-requ	ired OC limits?	X	-		 	
		Was the ICAL curve verified for each analyte?	ned QC mmis:	X	-	 	 	_
	ļ	Was the absolute value of the analyte concentration in the inorgan	io CCR < MOL 2	<u> </u>	-	X		\vdash
S3	0	Mass spectral tuning:	MDE:			2636	1062	473
33	<u> </u>	Was the appropriate compound for the method used for tuning?		X	-	- TANKSON	20000000	-
- 1				X	 	 	 	-
S4	0	Were ion abundance data within the method-required QC limits? Internal standards (IS):				abilio		19-17-
34	<u> </u>	Were IS area counts and retention times within the method-require	od OC limite®	-	X	A STATE OF THE PARTY IS	make a a **	2
S5	OI			b.sc	<u>^</u>	100	NE-SE	12
33	<u> </u>	Raw data (NELAC section 1 appendix A glossary, and section		X	.0.88	राज्यसम्बद्धः	- Significant	\$1600°
		Were the raw data (for example, chromatograms, spectral data) re			 		 	
.,	Were data associated with manual integrations flagged on the raw data?		data?	X	in Both	55018	Jan. 15.4	toubeads.
S6	0	Dual column confirmation	002	348	<u>دينون</u>	X	1000	
07		Did dual column confirmation results meet the method-required QC? Tentatively identified compounds (TICs):					1555.44	Same Same
S7_	0_			Sa. New			History.	H.
C0	Y	If TICs were requested, were the mass spectra and TIC data subjective for the Color of the Color	ct to appropriate checks?	/m/40%	(A. 500.50.15	X	Williams V.	1 103500
S8	1	Interference Check Sample (ICS) results:	·	THE .	324	7/05		212
	-	Were percent recoveries within method QC limits?	1 166	SEAR IN	disti-	X	* No. or Kind	rates de
S9	1	Serial dilutions, post digestion spikes, and method of standard		5/5/2	121	142	15.02	252
010	~-	Were percent differences, recoveries, and the linearity within the	OC limits specified in the method?	- 24465h-s	Abino y	<u>X</u> _	APPROXIMATE OF THE PARTY OF THE	10 me 2 mil (1)
S10	OI _	Method detection limit (MDL) studies		37	-		22	. SINS
		Was a MDL study performed for each reported analyte?		X	<u> </u>		<u> </u>	<u> </u>
		Is the MDL either adjusted or supported by the analysis of DCSs?		X	in gaments:	1000000000000	and others	1806%
S11	OI_	Proficiency test reports:		A253	1112	STATE.	**************************************	103%
		Was the laboratory's performance acceptable on the applicable pro	ficiency tests or evaluation studies?	X	79.5960	19 34427	16000000000	204, 87,881
S12	OI	Standards documentation		(3)07	NA A	, 53%	130%	AND.
	O T	Are all standards used in the analyses NIST-traceable or obtained	from other appropriate sources?	X	0.4.84	12024004	· John Strain	.m.200.4(%)
S13	OI	Compound/analyte identification procedures	10	4.2	2517	HE.	Grid.	1999
		Are the procedures for compound/analyte identification document	ed?	X	continued the	774 (mass)	Strain.	Sanak ti
S14	OI	Demonstration of analyst competency (DOC)	****		Best	100	NAME.	(316)
		Was DOC conducted consistent with NELAC Chapter 5C or ISO/		X	<u> </u>	<u> </u>	<u> </u>	├
		Is documentation of the analyst's competency up-to-date and on fi		Χ	43333	45 67		
S15	OI	Verification/validation documentation for methods (NELAC C		3032	1	16.60	2335	- State
$\overline{}$		l Ara all the motheday and to comprete the data decomposited verifies	l and validated subare annlicable?	X	i	i	ı	ł
- S16		Are all the methods used to generate the data documented, verified Laboratory standard operating procedures (SOPs):	i, and varidated, where applicable:	A.	V.	143	iin i	

Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).

NA = Not applicable. NR = Not Reviewed.

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

	idix A (cont'd): Laboratory Review (
Laborat	ory Name: STL-Houston	LRC Date: 04/07/04			
Project	Name: UPRR-HWPW-0014419 60	Laboratory Job Number: 270473			
Review	er Name: ACN	Prep Batch Number(s): 96171-SV SIM			
ER#1	DESCRIPTION				
1	The pentachlorophenol recoveries in the MS/MSD were above acceptance limits due to matrix interference.				
2	All the internal standard areas in sample 270473-5 were below acceptance limits due to matrix interference. Per method requirements, no corrective action was required.				

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

Projec Revie # ¹ R1	ect N ewer	ry Name: STL-Houston ame: UPRR-HWPW-0014419 60 Name: ACN Description Chain-of-custody (C-O-C) Did samples meet the laboratory's standard conditions Were all departures from standard conditions described Sample and quality control (QC) identification Are all field sample ID numbers cross-referenced to the Are all laboratory ID numbers cross-referenced to the C Test reports Were all samples prepared and analyzed within holding Other than those results < MQL, were all other raw value.	in an exception report?	Yes X X	No	NA ³	NR ⁴	ER# ⁵
Revie	OI	Name: ACN Description Chain-of-custody (C-O-C) Did samples meet the laboratory's standard conditions Were all departures from standard conditions described Sample and quality control (QC) identification Are all field sample ID numbers cross-referenced to the Are all laboratory ID numbers cross-referenced to the Control (QC) Test reports Were all samples prepared and analyzed within holding Other than those results < MQL, were all other raw value.	Prep Batch Number(s): 96170-SV of sample acceptability upon receipt? in an exception report?	X		X		
# ¹ R1 R2 (A ² OI	Description Chain-of-custody (C-O-C) Did samples meet the laboratory's standard conditions. Were all departures from standard conditions described. Sample and quality control (QC) identification. Are all field sample ID numbers cross-referenced to the Are all laboratory ID numbers cross-referenced to the CTest reports. Were all samples prepared and analyzed within holding. Other than those results < MQL, were all other raw values.	of sample acceptability upon receipt? in an exception report?	X		X		
R1	OI OI	Chain-of-custody (C-O-C) Did samples meet the laboratory's standard conditions were all departures from standard conditions described Sample and quality control (QC) identification Are all field sample ID numbers cross-referenced to the Are all laboratory ID numbers cross-referenced to the Test reports Were all samples prepared and analyzed within holding Other than those results < MQL, were all other raw value.	in an exception report?	X		X		
R2 (OI	Did samples meet the laboratory's standard conditions. Were all departures from standard conditions described. Sample and quality control (QC) identification. Are all field sample ID numbers cross-referenced to the Are all laboratory ID numbers cross-referenced to the CTest reports. Were all samples prepared and analyzed within holding. Other than those results < MQL, were all other raw values.	in an exception report?	X X		х		
R2 (OI	Were all departures from standard conditions described Sample and quality control (QC) identification Are all field sample ID numbers cross-referenced to the Are all laboratory ID numbers cross-referenced to the C Test reports Were all samples prepared and analyzed within holding Other than those results < MQL, were all other raw value.	in an exception report?	X	7,67		200	
		Sample and quality control (QC) identification Are all field sample ID numbers cross-referenced to the Are all laboratory ID numbers cross-referenced to the Care Test reports Were all samples prepared and analyzed within holding Other than those results < MQL, were all other raw value.	alaboratory ID numbers?	Х	- 1,54.4 - 1,54.4 - 1,54.4		567	1
		Are all field sample ID numbers cross-referenced to the Are all laboratory ID numbers cross-referenced to the Care Test reports Were all samples prepared and analyzed within holding Other than those results < MQL, were all other raw value.		Х	-\$60 ·	1.84	15.67	i
R3 (OI_	Are all field sample ID numbers cross-referenced to the Are all laboratory ID numbers cross-referenced to the Care Test reports Were all samples prepared and analyzed within holding Other than those results < MQL, were all other raw value.						(12%)
R3 (OI_	Test reports Were all samples prepared and analyzed within holding Other than those results < MQL, were all other raw value.	orresponding QC data?	X				
R3 (OI	Test reports Were all samples prepared and analyzed within holding Other than those results < MQL, were all other raw value.						
		Other than those results < MQL, were all other raw value		× 28	12.12	38.8°	(A)	483
		Other than those results < MQL, were all other raw value	times?	x				
				X				
		Were calculations checked by a peer or supervisor?		X				
ļ		Were all analyte identifications checked by a peer or su	pervisor?	Х				
- 1		Were sample quantitation limits reported for all analyte		X				
1		Were all results for soil and sediment samples reported				X		$\overline{}$
		Were % moisture (or solids) reported for all soil and se		 		X		
ļ		If required for the project, TICs reported?	annone sumpres.	 - -	 	X		 -
R4 (ō	Surrogate recovery data		4367	18 W	100	2 3	15.32
	-	Were surrogates added prior to extraction?		x	.154.00,6	ne green.		
	:	Were surrogate percent recoveries in all samples within	the laboratory OC limits?	1	Х		-	1,2
R5 (ŌΙ	Test reports/summary forms for blank samples	the laboratory QC limits:	-83	3	7. Tag	23	1,2
-	<u> </u>			X	***	sugar.	::3:,5	130-452-545
		Were appropriate type(s) of blanks analyzed?		X				
ł		Were blanks analyzed at the appropriate frequency?		$\frac{\hat{x}}{x}$	<u> </u>	-		 -
		Were method blanks taken through the entire analytical	process, including preparation and, if	^				l
		applicable, cleanup procedures?		X	<u> </u>			<u> </u>
. 		Were blank concentrations < MQL?	······································		1800	ia:	1	1.7850.00.31
R6 (OI_	Laboratory control samples (LCS):		37	300 kg	are.	77.100	176
[Were all COCs included in the LCS?	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	X	<u> </u>			 -
		Was each LCS taken through the entire analytical process	edure, including prep and cleanup steps?	X				
i		Were LCSs analyzed at the required frequency?	1 001: :: 0	X	<u> </u>			
		Were LCS (and LCSD, if applicable) %Rs within the la		Х		37		
1		Does the detectability data document the laboratory's ca	ipability to detect the COCs at the MDL	٠.		X		
		used to calculate the SQLs?			<u> </u>	37		
		Was the LCSD RPD within QC limits?		101 31 1 41	er thirtee	X	Sharing	w. n. N.
R7 (OI_	Matrix spike (MS) and matrix spike duplicate (MSD			284	3.03	100	Jack.
		Were the project/method specified analytes included in		X				-
[Were MS/MSD analyzed at the appropriate frequency?		X		· ·		
ļ		Were MS (and MSD, if applicable) %Rs within the laboration	oratory QC limits?		X			3
		Were MS/MSD RPDs within laboratory QC limits?		X	872	44.5		
R8 (OI	Analytical duplicate data	<u> </u>	330	***	1	***	14.00
- 1		Were appropriate analytical duplicates analyzed for each		<u> </u>		Х		
		Were analytical duplicates analyzed at the appropriate f			L	X		<u> </u>
		Were RPDs or relative standard deviations within the la	boratory QC limits?	<u> </u>		Х	• .	
R9 C	OI	Method quantitation limits (MQLs):		**	25.0	.X	100	治 斯德
		Are the MQLs for each method analyte included in the		X	<u> </u>			— —
[Ċ	Do the MQLs correspond to the concentration of the lo		X	<u> </u>			
<u> </u>		Are unadjusted MQLs included in the laboratory data p	ackage?	X				
R10 (OI	Other problems/anomalies			28 6 .	W.	姚	KH.
1		Are all known problems/anomalies/special conditions n	oted in this LRC and ER?	Х				
		Were all necessary corrective actions performed for the	reported data?	Х				
		Was applicable and available technology used to lower		Х				4

^{1.} Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

^{2. =} organic analyses; I = inorganic analyses (and general chemistry, when applicable);

^{3.} NA = Not applicable;

^{4.} NR = Not reviewed;

^{5.} ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Aŗ	pen	dix A (cont'd): Laboratory Review Checklist	: Reportable Data					
Lab	orato	ry Name: STL-Houston LR	C Date: 04/07/04	•				
Pro	ject N	Vame: UPRR-HWPW-0014419 60 La	boratory Job Number: 270473					
Rev	riewe	r Name: ACN Pre	p Batch Number(s): 96170-SV					
#1	. A ²	Description	<u> </u>	Yes	No	NA ³	NR ⁴	ER#5
<u>S1</u>		Initial calibration (ICAL)	· · · · · · · · · · · · · · · · · · ·	1.1	2000	telles.	,800 V	
<u>ٿ</u>		Were response factors and/or relative response factors for each a	analyte within OC limits?	X		1 1 1 2 1 2 1 2 1		
ł	1	Were percent RSDs or correlation coefficient criteria met?	maryo wimin oo minoo.	X				
		Was the number of standards recommended in the method used	for all analytes?	X				
l	l	Were all points generated between the lowest and highest standa		X				
		Are ICAL data available for all instruments used?		X				
]]	Has the initial calibration curve been verified using an appropria	ate second source standard?	X				
S2	OI	Initial and continuing calibration verification (ICCV and CO		- 13 N. S.	44.41	571488	*1000	100
		Was the CCV analyzed at the method-required frequency?		Х				
[1	Were percent differences for each analyte within the method-rec	quired QC limits?	X				
		Was the ICAL curve verified for each analyte?	· · · · · · · · · · · · · · · · · · ·	Х				
1	ł	Was the absolute value of the analyte concentration in the inorga	anic CCB < MDL?			X		
S3	0	Mass spectral tuning:			iaur.	3464	3032	14.1
	1	Was the appropriate compound for the method used for tuning?		Х				
		Were ion abundance data within the method-required QC limits'	? •	X				
S4	o	Internal standards (IS):	· · · · · · · · · · · · · · · · · · ·	201	- %	33 K	71000	10.50
		Were IS area counts and retention times within the method-requ	ired OC limits?		X			5
S5	OI	Raw data (NELAC section 1 appendix A glossary, and section		430	1.5		mai.	1.43
-	<u> </u>	Were the raw data (for example, chromatograms, spectral data)		X				
1		Were data associated with manual integrations flagged on the ra		X	-			
S6	0	Dual column confirmation				TEST	disor.	
	 	Did dual column confirmation results meet the method-required	OC?			X		
S7	O	Tentatively identified compounds (TICs):		dell'	1990	1.21	Supplied	34,5
	-	If TICs were requested, were the mass spectra and TIC data sub	ject to appropriate checks?		100.100	Х		
S8	I	Interference Check Sample (ICS) results:		3632	dies.	Saltary.		10.12
l		Were percent recoveries within method QC limits?				X		
S9	ī	Serial dilutions, post digestion spikes, and method of standar	rd additions	TO GO	Bages -	Contract State File	1000	200
	-	Were percent differences, recoveries, and the linearity within the		114.14		X		
S10	ΟĪ	Method detection limit (MDL) studies		45.14	300	22	jertije.	12.5
\vdash		Was a MDL study performed for each reported analyte?		X				
		Is the MDL either adjusted or supported by the analysis of DCSs	s?	X				
S11	OI	Proficiency test reports:		42	S.A.	William.	ZONE	to see the set
		Was the laboratory's performance acceptable on the applicable p	roficiency tests or evaluation studies?	X				
S12	OI	Standards documentation		***	3.4	1425	17753	#/SE
		Are all standards used in the analyses NIST-traceable or obtaine	d from other appropriate sources?	X				-
S13	OI	Compound/analyte identification procedures		1000	200	15.5	M. Di	Arth.
		Are the procedures for compound/analyte identification docume	nted?	X				
S14	OI	Demonstration of analyst competency (DOC)		715	ži,		0.00	-5.5%
		Was DOC conducted consistent with NELAC Chapter 5C or ISC	D/IEC 4?	X				
	ļ	Is documentation of the analyst's competency up-to-date and on	file?	X				
S15	OI	Verification/validation documentation for methods (NELAC		ari.				1,479 -1.
		Are all the methods used to generate the data documented, verifi		Х				
S16	OI	Laboratory standard operating procedures (SOPs):			35		1 No. 1	13534
		Are laboratory SOPs current and on file for each method perform	ned?	X				
		, ·						

Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

² O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).

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ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Apper	Appendix A (cont'd): Laboratory Review Checklist: Exception Reports							
Laborat	ory Name: STL-Houston	LRC Date: 04/07/04						
Project	Name: UPRR-HWPW-0014419 60	Laboratory Job Number: 270473						
Review	er Name: ACN	Prep Batch Number(s): 96170-SV						
ER#1	DESCRIPTION							
1	The 2,4,6-tribromophenol surrogate recoveries in samples 270473-5, 6MS, 7MSD, the LCS, and the MB were above acceptance limits. These high recoveries will not affect the quality of the reported results.							
2	The 2,4,6-tribromophenol surrogate recoveries in sam dilutions necessary for analyses.	ples 270473-6 5X and 7 5X were above acceptance limits due to the						
3	The acenaphthene and fluorene recoveries in the MS and MSD and the phenanthrene recovery in the MSD were below acceptance limits. The 2-methyl-4,6-dinitrophenol recoveries in the MS and MSD and the naphthalene recovery in the MSD were above acceptance limits. All excursions were due to matrix interference.							
4 .	The acenapthene SQLs in samples 270473-1, 5, 6, and 7 were elevated due to the dilutions necessary for analyses. Additionally, the fluorene SQL in sample 270473-5 was elevated due to the dilution necessary for analysis.							
5	All the internal standard areas in samples 270473-5 1X and 7 1X were above acceptance limits due to matrix interference. Per method requirements, no corrective action was required.							
	ER# = Exception Report identification number (an Exception Report should be completed for an item if							

ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on the LRC)

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SEND REPORT TO Chris Young		INVOICE ATTN	Geoff R	eeder			G	Level 2/	TRRP dat	a pack	age				
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SAMP NO. SAMPLE DESCRIPTION			SERVE	F. SAMPLE.N	MATRIX S	SAMPLE DATE	SAMPLE,	I IME # CONTA	INER A B	CDE	FGH	ijJК	LMN	ОР	QЯ
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Severn Trent Laboratories

6310 Rothway Drive

Houston, TX 77040

(713) 690-4444

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vern Trent Lah	oratories 6310 Rothway Drive	Houston	TX 77040	(713	1 400-44		. 7,		:											•		

rpjsckl ,	Job Sample Receipt Checklist Report	V2
Job Number.: 270473 Location.: 57216 Customer Job ID: Project Number.: 99000484 Project Desc Customer: ERM Southwest, Inc Ho	Job Check List Date.: Date of ription: UPRR-HWPW-0014419/60 Project	the Report: 03/18/2004 Manager: sgk
Questions ?	(Y/N) Comments	
Chain of Custody Received?	Y	
If "yes", completed properly?	Ү	
Custody seal on shipping container?	ү	
If "yes", custody seal intact?	Υ	
Custody seals on sample containers?	Ń	
If "yes", custody seal intact?	•••••	· ·
Samples chilled?	Y	
Temperature of cooler acceptable? (4 deg	C +/- 2). Y 2.5,3.1,2.7,3.0,2.7,2.4	
If "no", is sample an air matrix?(no	temp req.)	. . .
Thermometer ID	Y 404,402,324,368,325,	• • •
Samples received intact (good condition)	? Y	
Volatile samples acceptable? (no headspa	ce) Y	
Correct containers used?	Y	
Adequate sample volume provided?	Y	
Samples preserved correctly?	Y	
Samples received within holding-time?	Y	
Agreement between COC and sample labels?	Y	
Radioactivity at or below background leve	els? Y	
Additional		
Comments	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	(
Sample Custodian Signature/Date	Y ACR WW. 5.1860	

Page 1

CLIENT NAME: EKM		•	CARRIER	RIDRIVER NA	ME:	Phu	· /
PROJECT:		·	. UNPACK	ED BY:	DM		. =
DATE RECEIVED:	MAR 18 PM 12	26		ED STAMP:	2004 MA	R 18 PM	4:37
							····
TOTAL # COOLERS RECEIVED:_		OOLER CHE	CKLIST		• .		
COOLER ID COC	CUSTODY TAPE	COOLER	THERM	TEMP BLK			ach Cooler if
PRESENT (Y/N)		TEMP	ID .	PRESENT (Y/N)	out of Ter	nperature	
	PRESENT INTACT	. (°C)					
0.1 44.00	(Y/N) (Y/N)			 			 ;
Allgreen	- 7 / -		24	لتما			
1095 7 1	'N M'	3.0	36	. №			ı .
6/15	7		110	,		 	
01W3797 B	ntint	7 2.7	325.	i 1	}	•	
Q/11 C							
72 11	7 10	- 2.4	402	1	ĺ		
C = COOLER B = BOTTLES	11 1:11	1 1		<u> </u>	<u></u>	n	
COOLER(S) SCREENED FOR RAD	NATION? YES	n IFT	FMP BLK.	N: HOW WAS	S TEMP TA	KÉN: M	114
	· · · · · · · · · · · · · · · · · · ·			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, , ,,		,
SHORT HOLD	/RUSH SAMPLES	(include depa	rtment del	ivered to and	d time deli	vered)	war.
						•	•
							
		:		·		•	
*********	*******	*****	*****	*****	******	****	
*	,	*******	*******	*****	**********	**************************************	2
SPECIFIC PROJECT INFORMATIO	<u>N</u> . /	/ .	J(OB NUMBER	: <i>U</i>	7047	, , ,
SPECIFIC PROJECT INFORMATIO OLATILE HEADSPACE ACCEPTA	N BLE? YesNo	NA)L M	OB NUMBER arked As Pre	:: <u> </u>	7047	, 2
SPECIFIC PROJECT INFORMATION OLATILE HEADSPACE ACCEPTA If ANY headspace is present, list details	N BLE? YesNo	NA)L M	OB NUMBER	:: <u> </u>	7047	7
PECIFIC PROJECT INFORMATION OLATILE HEADSPACE ACCEPTA ANY headspace is present, list details HOF WATER SAMPLES	NO INCONSISTENCIES		J(M Ni	OB NUMBER arked As Pre umber of VOA	::	7047 <u>/</u> esNo 44	
PECIFIC PROJECT INFORMATION OLATILE HEADSPACE ACCEPTA f ANY headspace is present, list details	N BLE? YesNo	NA NA CORRECT (J(M Ni	OB NUMBER arked As Pre	::	7047 <u>/</u> esNo 44	
PECIFIC PROJECT INFORMATIO OLATILE HEADSPACE ACCEPTA f ANY neadspace is present, list details H OF WATER SAMPLES PRESERVATION	NO INCONSISTENCIES		J(M Ni	OB NUMBER arked As Pre umber of VOA	::	7047 <u>/</u> esNo 44	
PECIFIC PROJECT INFORMATION OLATILE HEADSPACE ACCEPTA If ANY neadspace is present, list details H OF WATER SAMPLES PRESERVATION 2SO4 (<2)	NO INCONSISTENCIES	NA NA CORRECT (J(M Ni	OB NUMBER arked As Pre umber of VOA	::	7047 <u>/</u> esNo 44	
PECIFIC PROJECT INFORMATION OLATILE HEADSPACE ACCEPTA f ANY headspace is present, list details H OF WATER SAMPLES PRESERVATION 2SO4 (<2) NO3 (<2) CL (<2) (Not VOA Vials)	NO INCONSISTENCIES	NA NA CORRECT (J(M Ni	OB NUMBER arked As Pre umber of VOA	::	7047 <u>/</u> esNo 44	
PECIFIC PROJECT INFORMATION OLATILE HEADSPACE ACCEPTA If ANY headspace is present, list details H OF WATER SAMPLES PRESERVATION 2SO4 (<2) NO3 (<2) CL (<2) (Not VOA Vials) aOH - Cyanide (>12)	NO INCONSISTENCIES	NA NA CORRECT (J(M Ni	OB NUMBER arked As Pre umber of VOA	::	7047 <u>/</u> esNo 44	
PECIFIC PROJECT INFORMATION OLATILE HEADSPACE ACCEPTA f ANY headspace is present, list details H OF WATER SAMPLES PRESERVATION 2SO4 (<2) NO3 (<2) CL (<2) (Not VOA Vials) aOH – Cyanide (>12) aOH/Zn Acetate – Sulfide (>9)	BLE? Yes No in INCONSISTENCIES # BOTTLES	NA NA CORRECT (J(M Ni	OB NUMBER arked As Pre umber of VOA	::	7047 <u>/</u> esNo 44	
PECIFIC PROJECT INFORMATIO OLATILE HEADSPACE ACCEPTA f ANY neadspace is present, list details H OF WATER SAMPLES PRESERVATION 2SO4 (<2) NO3 (<2) CL (<2) (Not VOA Vials) aOH - Cyanide (>12) aOH/Zn Acetate - Sulfide (>9) ther	NO INCONSISTENCIES	NA NA CORRECT (JC M NI	OB NUMBER arked As Pre umber of VOA If N, List sa	:: U served? Y A Vials: mple ID ar	esNo	
PECIFIC PROJECT INFORMATION OLATILE HEADSPACE ACCEPTA f ANY headspace is present, fist details H OF WATER SAMPLES PRESERVATION 2SO4 (<2) NO3 (<2) CL (<2) (Not VOA Vials) aOH - Cyanide (>12) aOH/Zn Acetate - Sulfide (>9) ther	BLE? Yes No in INCONSISTENCIES # BOTTLES	NA NA CORRECT (JC M NI	OB NUMBER arked As Pre umber of VOA	:: U served? Y A Vials: mple ID ar	esNo	
PECIFIC PROJECT INFORMATIO OLATILE HEADSPACE ACCEPTA f ANY headspace is present, list details H OF WATER SAMPLES PRESERVATION 2SO4 (<2) NO3 (<2) CL (<2) (Not VOA Vials) aOH - Cyanide (>12) aOH/Zn Acetate - Sulfide (>9) ther OF NEAT BOTTLES:	BLE? YesNo in INCONSISTENCIES # BOTTLES	NA NA Conception (Y/N)	JC M NI I I I I	OB NUMBER arked As Pre umber of VOA If N, List san	served? Y A Vials: mple ID ar	esNo	
PECIFIC PROJECT INFORMATION OLATILE HEADSPACE ACCEPTA If ANY headspace is present, list details H OF WATER SAMPLES PRESERVATION 2SO4 (<2) NO3 (<2) CL (<2) (Not VOA Vials) aOH - Cyanide (>12) aOH/Zn Acetate - Sulfide (>9) ther OF NEAT BOTTLES:	BLE? Yes No in INCONSISTENCIES # BOTTLES	NA NA Conception (Y/N)	JC M NI I I I I	OB NUMBER arked As Pre umber of VOA If N, List san	served? Y A Vials: mple ID ar	esNo	
PECIFIC PROJECT INFORMATIO OLATILE HEADSPACE ACCEPTA f ANY headspace is present, list details H OF WATER SAMPLES PRESERVATION 2SO4 (<2) NO3 (<2) CL (<2) (Not VOA Vials) aOH - Cyanide (>12) aOH/Zn Acetate - Sulfide (>9) ther OF NEAT BOTTLES:	BLE? YesNo in INCONSISTENCIES # BOTTLES	NA NA Conception (Y/N)	JC M NI I I I I	OB NUMBER arked As Pre umber of VOA If N, List san	served? Y A Vials: mple ID ar	esNo	
PECIFIC PROJECT INFORMATION OLATILE HEADSPACE ACCEPTA If ANY headspace is present, list details H OF WATER SAMPLES PRESERVATION 2SO4 (<2) NO3 (<2) CL (<2) (Not VOA Vials) aOH - Cyanide (>12) aOH/Zn Acetate - Sulfide (>9) ther OF NEAT BOTTLES:	BLE? YesNo in INCONSISTENCIES # BOTTLES	NA Section) CORRECT (Y/N) Place in Job	DH # (OB NUMBER arked As Pre umber of VO/ If N, List sal OF SOIL JAR vell (CTRL F-	served? Y A Vials: mple ID ar	esNo	
PECIFIC PROJECT INFORMATION OLATILE HEADSPACE ACCEPTA If ANY headspace is present, list details H OF WATER SAMPLES PRESERVATION 2SO4 (<2) NO3 (<2) CL (<2) (Not VOA Vials) aOH - Cyanide (>12) aOH/Zn Acetate - Sulfide (>9) ther OF NEAT BOTTLES:	BLE? YesNo in INCONSISTENCIES # BOTTLES	NA Section) CORRECT (Y/N) Place in Job	DH # (OB NUMBER arked As Pre umber of VOA If N, List san	served? Y A Vials: mple ID ar	esNo	
PECIFIC PROJECT INFORMATION OLATILE HEADSPACE ACCEPTA If ANY headspace is present, list details H OF WATER SAMPLES PRESERVATION 2SO4 (<2) NO3 (<2) CL (<2) (Not VOA Vials) aOH - Cyanide (>12) aOH/Zn Acetate - Sulfide (>9) ther OF NEAT BOTTLES:	BLE? YesNo in INCONSISTENCIES # BOTTLES	NA NA	DH # (OB NUMBER arked As Pre umber of VO/ If N, List sal OF SOIL JAR vell (CTRL F-	served? Y A Vials: mple ID ar	esNo	
PECIFIC PROJECT INFORMATION OLATILE HEADSPACE ACCEPTA f ANY headspace is present, list details H OF WATER SAMPLES PRESERVATION 2SO4 (<2) NO3 (<2) CL (<2) (Not VOA Vials) aOH - Cyanide (>12) aOH/Zn Acetate - Sulfide (>9) ther OF NEAT BOTTLES:	BLE? Yes No in INCONSISTENCIES # BOTTLES CONSISTENCIES -	NA NA Section) CORRECT (Y/N) Place in Job (ACTION TAK	JO M No M No M No M No M No M No M No M N	OB NUMBER arked As Pre umber of VO/ If N, List sal	served? YA Vials:	esNo	
PECIFIC PROJECT INFORMATION OLATILE HEADSPACE ACCEPTA f ANY headspace is present, list details H OF WATER SAMPLES PRESERVATION 2SO4 (<2) NO3 (<2) CL (<2) (Not VOA Vials) aOH – Cyanide (>12) aOH/Zn Acetate – Sulfide (>9) ther OF NEAT BOTTLES: IN	BLE? YesNo in INCONSISTENCIES# BOTTLES	NA Section) CORRECT (Y/N) Place in Job (ACTION TAK	JO M No M No M No M No M No M No M No M N	OB NUMBER arked As Pre umber of VO/ If N, List sal	served? Y A Vials: mple ID ar	esNo	
PECIFIC PROJECT INFORMATION OLATILE HEADSPACE ACCEPTA f ANY headspace is present, list details H OF WATER SAMPLES PRESERVATION 2SO4 (<2) NO3 (<2) CL (<2) (Not VOA Vials) aOH – Cyanide (>12) aOH/Zn Acetate – Sulfide (>9) ther OF NEAT BOTTLES: IN	BLE? Yes No in INCONSISTENCIES # BOTTLES CONSISTENCIES -	NA Section) CORRECT (Y/N) Place in Job (ACTION TAK	JO M No M No M No M No M No M No M No M N	OB NUMBER arked As Pre umber of VO/ If N, List sal	served? YA Vials:	esNo	
COLATILE HEADSPACE ACCEPTA ANY headspace is present, list details H OF WATER SAMPLES PRESERVATION (2SO4 (<2) NO3 (<2) CL (<2) (Not VOA Vials) aOH - Cyanide (>12) aOH/Zn Acetate - Sulfide (>9) ther OF NEAT BOTTLES: IN	BLE? YesNo in INCONSISTENCIES# BOTTLES	NA Section) CORRECT (Y/N) Place in Job (ACTION TAK	JO M No M No M No M No M No M No M No M N	OB NUMBER arked As Pre umber of VO/ If N, List sal	served? YA Vials:	esNo	
SPECIFIC PROJECT INFORMATION OLATILE HEADSPACE ACCEPTA If ANY headspace is present, list details H OF WATER SAMPLES PRESERVATION IZSO4 (<2) INO3 (<2) ICL (<2) (Not VOA Vials) IAOH - Cyanide (>12) IAOH/Zn Acetate - Sulfide (>9) ITHER OF NEAT BOTTLES: IN IN ERSON CONTACTED: ESOLUTION	BLE? YesNo in INCONSISTENCIES# BOTTLES	NA Section) CORRECT (Y/N) Place in Job (ACTION TAK	DH # (Notes as w	DB NUMBER arked As Pre umber of VOA If N, List sal	served? Y A Vials: mple ID ar	esNo	anding pH
PECIFIC PROJECT INFORMATION OLATILE HEADSPACE ACCEPTA f ANY headspace is present, list details H OF WATER SAMPLES PRESERVATION 2SO4 (<2) NO3 (<2) CL (<2) (Not VOA Vials) aOH – Cyanide (>12) aOH/Zn Acetate – Sulfide (>9) ther OF NEAT BOTTLES: IN	BLE? YesNo in INCONSISTENCIES# BOTTLES	NA Section) CORRECT (Y/N) Place in Job (ACTION TAK	DH # (Notes as w	OB NUMBER arked As Pre umber of VO/ If N, List sal	served? Y A Vials: mple ID ar	esNo	anding pH

	STON - SAMPLE	RECEIPT	CHECKLIS'	T O	
CLIENT NAME: ERM	<u>—</u>	CARRIEF	VDRIVER NA	ME: Thu	
PROJECT: 700 No. 15	<u>.</u> ·	UNPACK	ED BY:	N	
PROJECT: 204 MAR 18 PM 12: 26 DATE RECEIVED:	<u>.</u> .	UNPACK	ED STAMP:_	2014 MAR 18	PH 4: 38
TOTAL # COOLERS RECEIVED:				•	
	COOLER CHE		·		
COOLER ID COC CUSTODY TA PRESENT (Y/N)	TEMP	THERM ID	TEMP BLK PRESENT (Y/N)	List Sample Bottles in Each Coo out of Temperature	er if , ,
(Y/N) (TACT (/N)				
K/W/3 7 - C 7 1	7 25	404	ω		·
B/N Elab B	K 3.1	402		·	
LOTS / B IN I	7 2:7	324	7		
C = COOLER R - BOTTLES	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ 	1 1		In t	
COOLER(S) SCREENED FOR RADIATION? Yes_				l	<u>~</u>
SHORT HOLD / RUSH SAMP	LES (include depa		vered to and	I time delivered)	<u> </u>
-					
SPECIFIC PROJECT INFORMATION VOLATILE HEADSPACE ACCEPTABLE? Yes (If ANY headspace is present, list details in INCONSISTER	No NA	J(M:	OB NUMBER	:	
pH OF WATER SAMPLES PRESERVATION # BOTTL!		pH	lf N, List sar	mple ID and Corresponding (рН
H2SO4 (<2)	(Y/N)			· · · · · · · · · · · · · · · · · · ·	
HNO3 (<2)				<u>.</u>	
HCL (<2) (Not VOA Vials)		- i			
NaOH – Cyanide (>12)			•	, we will also the second seco	
NaOH/Zn Acetate - Sulfide (>9)			··		<u>-</u>
Other					
# OF NEAT BOTTLES:			OF SOIL JAR		•
inconsistenci	ES – Place in Job	Notes as w	ell (CTRL F-	12)	
				······································	·
				·	
PERSON CONTACTED:RESOLUTION	ACTION TAK		DATE:	· · · · · · · · · · · · · · · · · · ·	
NOTES					
	<u> </u>		· · · · · · · · · · · · · · · · · · ·		
Project Manager			(Use ba	ack of sheet if necessary)	



TRRP Laboratory Test Results

Date:

4/7/04

Job Number: 270473

CUSTOMER: ERM Southwest; Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60 ATTN: Chris Young

Customer Sample ID:

MW-3-1SA04

Laboratory Sample ID: 270473-001.

Date/Time Sampled 3/17/04

Sample Matrix: Water

Date/Time Received: 3/18/04

8:52 12:26

· •												
TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS:	Analysis D	ate/Time	Batch	D.F.	Analyst
Method: SW-846 8260B, Water												
1,2-Dichloroethane	107-06-2	0.00136	U	0.00136	0.005	0.00136	mg/L	3/22/04	21:50	96367	1	zfl
Benzene	71-43-2	0.00143	Ü	0.00143	0.005	0.00143	mg/L	3/22/04	21:50	96367	1	zfl
Chlorobenzene	108-90-7	0.00155	U	0.00155	0.005	0.00155	mg/L	3/22/04	21:50	96367	1	zfl
Ethylbenzene	100-41-4	0.00137	U	0.00137	0.005	0.00137	mg/L	3/22/04	21:50	96367	1	zfl
Methylene Chloride	75-09-2	0.0013	U	0.0013	0.005	0.0013	mg/L	3/22/04	21:50	96367	1	zfl
Toluene	108-88-3	0.00136	U	0.00136	0.005	0.00136	mg/L	3/22/04	21:50	96367	1	zfl
Xylenes (total)	1330-20-7	0.00441	U	0.00441	0.015	0.00441	mg/L	3/22/04	21:50	96367	1	zfl

Form I



CUSTOMER: ERM Southwest, Inc.- Houston

TRRP Laboratory Test Results

Date:

4/7/04

Job Number: 270473

PROJECT: UPRR-HWPW-0014419 60

Chris Young

Customer Sample ID:

MW-3-1SA04

Date/Time Sampled 3/17/04

Laboratory Sample ID: 270473-001

ATTN:

Date/Time Received: 3/18/04

8:52 12:26 Sample Matrix: Water

TEST METHOD CAS# RESULT **FLAG** MDL MOL SQL UNITS Analysis Date/Time D.F. Analyst Batch Method: SW-846 8270C, Water 5-3-04

1,2-Diphenylhydrazine 122-66-7 0.00005 U 0.00005 0.0001 0.00005 3/30/04 mg/L 20:45 97046 1 acn 2,4-Dimethylphenol 105-67-9 0.000116 U 0.000122 0.0005 0.000116 mg/L 3/24/04 11:55 97017 1 acn 2,4-Dinitrotoluene 121-14-2 0.000009 U 0.000009 0.0001 | 0.000009 mg/L 3/30/04 20:45 97046 acn 2,6-Dinitrotoluene 606-20-2 0.000026 Ū 0.000027 0.0001 0.000026 mg/L 3/30/04 20:45 97046 1 acn 2-Chloronaphthalene 91-58-7 0.000076 0.0005 U 0.00008 10.000076 mg/L 3/24/04 97017 11:55 1 acn 2-Methyl-4,6-dinitrophenol 534-52-1 0.000295 U 0.00031 0.0015 0.000295 mg/L 3/24/04 11:55 97017 1 acn 2-Methylnaphthalene 91-57-6 0.000067 U 0.00007 0.0005 0.000067 mg/L 3/24/04 97017 11:55 acn 4-Nitrophenol 100-02-7 0.000285 U 0.000299 0.0015 0.000285 mg/L 3/24/04 11:55 97017 1 acn Acenaphthene 83-32-9 0.1104 0.000078 0.0003 0.0005 3/26/04 mg/L 15:43 97017 acn Acenaphthylene 208-96-8 0.000833 JL 80000.0 0.0005 0.000076 mg/L 3/24/04 11:55 97017 1 LBC acn Anthracene 120-12-7 0.00129 0.00013 JL 0.0005 0.000124 mg/L 3/24/04 97017 11:55 1 Lec_ acn Benzo(a)anthracene JJL 56-55-3 0.000379 0.00028 0.0005 0.000267 mg/L 3/24/04 11:55 97017 1 acn UBC-

Benzo(a)pyrene 50-32-8 0.000511 0.000007 0.0001 0.000007 3/30/04 97046 mg/L 20:45 1 acn bis(2-chloroethoxy)methane 0.000009 111-91-1 0.000009 U 0.0001 | 0.000009 mg/L 3/30/04 20:45 97046 acn

Form I

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Page 19



Job Number: 270473

Date: 4/7/04

CUSTOMER: ERM Southwest, Inc.- Houston PROJECT: UPRR-HWPW-0014419 60 ATTN: Chris Young

Customer Sample ID:

MW-3-1SA04

Date/Time Sampled: 3/17/04

8:52

Sample Matrix: Water

Laboratory Sample ID: 270473-001

Date/Time Received: 3/18/04 12:26

L														1
	TEST,METHOD	; CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS :	Analysis D	ate/Time	Batch	D.F.	Analyst	5-3-64
	bis(2-ethylhexyl)phthalate	117-81-7	0.000943	u	0.00018	0.0005	0.000172	mg/L	3/24/04	11:55	97017	1	acn	BL-
	Chrysene	218-01-9	0.00052	ナレ	0.000094	0.0005	0.00009	mg/L	3/24/04	11:55	97017	1	acn	uec
	Dibenzofuran	132-64-9	0.0097	JL	0.00008	0.0005	0.000076	mg/L	3/24/04	11:55	97017	1	acn	دهد
	Di-n-butyl Phthalate	84-74-2	0.000654	u	0.00015	0.0005	0.000143	mg/L	3/24/04	11:55	97017	1	acn	UBU-
	Fluoranthene	206-44-0	0.01034	JL	0.000098	0.0005	0.000093	mg/L	3/24/04	11:55	97017	1	acn	LBL
	Fluorene	86-73-7	0.0427	ナレ	0.000071	0.0005	0.000068	mg/L	3/24/04	11:55	97017	1	acn	BC_
	Naphthalene	91-20-3	0.000264	JJL	0.00007	0.0005	0.000067	mg/L	3/24/04	11:55	97017	1	acn	136-
	Nitrobenzene	98-95-3	0.000143	U	0.00015	0.0005	0.000143	mg/L	3/24/04	11:55	97017	1	acn	
	n-Nitrosodiphenylamine	86-30-6	0.00009	υ	0.000094	0.0005	0.00009	mg/L	3/24/04	11:55	97017	1	acn	
	Pentachlorophenol	87-86-5	0.000038	UR	0.00004	0.0003	0.000038	mg/L	3/30/04	20:45	97046	1	acn a	BL
	Phenanthrene	85-01-8	0.000663	σL	0.000081	0.0005	0.000077	mg/L	3/24/04	11:55	97017	1	acn	SC.
	Phenol	108-95-2	0.0000953	U	0.0001	0.0005	0.0000953	mg/L	3/24/04	11:55	97017	1	acn	
,	Pyrene	129-00-0	0.004965	JL	0.000088	0.0005	0.000084	mg/L	3/24/04	11:55	97017	1	acn (BC-

Form I

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Date:

4/7/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270473

MW-2-1SA04

Laboratory Sample ID: 270473-002

Date/Time Sampled 3/17/04

Sample Matrix: Water

Date/Time Received: 3/18/04

9:50 12:26

TEGENETION	CACH	DECLUA	TT AC	MDI	MOL	COL	IDITO	A 1 5	-4-/T:	Datab	D.F.	Amalanti
TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL ;	SQL	UNITS	Analysis D	ate/ i ime	Batch	D.F.	Analyst
Method: SW-846 8260B, Water												
1,2-Dichloroethane	107-06-2	0.00136	U	0.00136	0.005	0.00136	mg/L	3/22/04	19:42	96367	1	zfl
Benzene	71-43-2	0.00143	Ū	0.00143	0.005	0.00143	mg/L	3/22/04	19:42	96367	1	zfl
Chlorobenzene	108-90-7	0.00155	U	0.00155	0.005	0.00155	mg/L	3/22/04	19:42	96367	1	zfl
Ethylbenzene	100-41-4	0.00137	U	0.00137	0.005	0.00137	mg/L	3/22/04	19:42	96367	1	zfl
Methylene Chloride	75-09-2	0.0013	U	0.0013	0.005	0.0013	mg/L	3/22/04	19:42	96367	1	zfl
Toluene	108-88-3	0.00136	U	0.00136	0.005	0.00136	mg/L	3/22/04	19:42	96367	1	zfl
Xylenes (total)	1330-20-7	0.0122	J	0.00441	0.015	0.00441	mg/L	3/22/04	19:42	96367	1	zfl

Form I



Date:

4/7/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

Chris Young ATTN:

Customer Sample ID:

Job Number: 270473

MW-2-1SA04

Laboratory Sample ID: 270473-002

Date/Time Sampled 3/17/04

9:50

Sample Matrix Water

Date/Time Received: 3/18/04

12:26

TEST METHOD CAS# RESULT FLAG MDL MQL SQL UNITS Analysis Date/Time Batch D.F. Analyst Method: SW-846 8270C, Water etidikiri Tanak 1,2-Diphenylhydrazine 122-66-7 0.00005 U 0.00005 0.0001 0.00005 3/30/04 21:15 97046 mg/L 1 acn 2,4-Dimethylphenol 105-67-9 0.000116 U 0.000122 0.0005 0.000116 3/24/04 mg/L 12:25 97017 1 acn 2,4-Dinitrotoluene 121-14-2 0.000009 U 0.000009 0.000009 0.0001 mg/L 3/30/04 21:15 97046 1 acn 2,6-Dinitrotoluene 606-20-2 0.000026 U 0.000027 0.0001 0.000026 3/30/04 mg/L 21:15 97046 1 acn 2-Chloronaphthalene 91-58-7 0.000076 U 0.00008 0.0005 0.000076 mg/L 3/24/04 12:25 97017 1 acn 2-Methyl-4,6-dinitrophenol 534-52-1 0.000295 IJ 0.00031 0.000295 0.0015 mg/L 3/24/04 12:25 97017 1 acn 2-Methylnaphthalene 91-57-6 0.001694 0.00007 0.0005 0.000067 3/24/04 12:25 97017 mg/L 1 acn 4-Nitrophenol 100-02-7 0.000285 IJ 0.000299 0.0015 0.000285 3/24/04 mg/L 12:25 97017 1 acn Acenaphthene 83-32-9 0.03018 0.000078 0.0005 0.000074 mg/L 3/24/04 12:25 97017 1 acn Acenaphthylene 208-96-8 0.000076 0.000418 J 0.00008 0.0005 3/24/04 12:25 97017 mg/L 1 acn Anthracene 120-12-7 0.001494 0.00013 0.0005 0.000124 3/24/04 mg/L 12:25 97017 1 acn Benzo(a)anthracene 56-55-3 0.000267 U 0.00028 0.0005 0.000267 3/24/04 12:25 97017 1 mg/L acn Benzo(a)pyrene 50-32-8 0.000007 U 0.000007 0.000007 97046 0.0001 3/30/04 mg/L 21:15 1 acn bis(2-chloroethoxy)methane 111-91-1 0.000009 IJ 0.000009 0.0001 0.000009 mg/L 3/30/04 21:15 97046 acn

Form I



Date:

4/7/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

Chris Young ATTN:

Customer Sample ID:

Job Number: 270473

MW-2-1SA04

Laboratory Sample ID: 270473-002

Date/Time Sampled 3/17/04

Sample Matrix Water

Date/Time Received: 3/18/04

9:50 12:26

NACO NACO NACO NACO NACO NACO NACO NACO			2 h ()										
TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis D	ate/Time	Batch	D.F.	Analyst	5-3-6
bis(2-ethylhexyl)phthalate	117-81-7	0.000172	U	0.00018	0.0005	0.000172	mg/L	3/24/04	12:25	97017	1	acn	
Chrysene	218-01-9	0.00009	U	0.000094	0.0005	0.00009	mg/L	3/24/04	12:25	97017	1	acn	
Dibenzofuran	132-64-9	0.01945		0.00008	0.0005	0.000076	mg/L	3/24/04	12:25	97017	1	acn	-
Di-n-butyl Phthalate	84-74-2	0.000792	u	0.00015	0.0005	0.000143	mg/L	3/24/04	12:25	97017	1	acn	486
Fluoranthene	206-44-0	0.001861		0.000098	0.0005	0.000093	mg/L	3/24/04	12:25	97017	1	acn	
Fluorene	86-73-7	0.02035		0.000071	0.0005	0.000068	mg/L	3/24/04	12:25	97017	1	acn	
Naphthalene	91-20-3	0.000604		0.00007	0.0005	0.000067	mg/L	3/24/04	12:25	97017	1	acn	
Nitrobenzene	98-95-3	0.000143	U	0.00015	0.0005	0.000143	mg/L	3/24/04	12:25	97017	1	acn	
n-Nitrosodiphenylamine	86-30-6	0.00009	U	0.000094	0.0005	0.00009	mg/L	3/24/04	12:25	97017	1	acn	
Pentachlorophenol	87-86-5	0.000038	UR	0.00004	0.0003	0.000038	mg/L	3/30/04	21:15	97046	1	acn	نهن
Phenanthrene	85-01-8	0.002468		0.000081	0.0005	0.000077	mg/L	3/24/04	12:25	97017	1	acn	
Phenol	108-95-2	0.0000953	U	0.0001	0.0005	0.0000953	mg/L	3/24/04	12:25	97017	1	acn	
Pyrene	129-00-0	0.000883		0.000088	0.0005	0.000084	mg/L	3/24/04	12:25	97017	1	acn	

Form I

G C)



Date: 4/7/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60 ATTN: Chris Young

Customer Sample ID:

Job Number: 270473

MW-01A-1SA04

Laboratory Sample ID: 270473-003

Date/Time Sampled 3/17/04

10:40

Sample Matrix: Water

Date/Time Received: 3/18/04

12:26

TEST METHOD	CAS#	# RESULT	FLAG	* MDL	MQL	SQL	UNITS	Analysis D	ate/Time	Batch	D.F.	Analyst
Method: SW-846 8260B, Water												
1,2-Dichloroethane	107-06-2	0.00136	U	0.00136	0.005	0.00136	mg/L	3/22/04	20:07	96367	1	zfl
Benzene	71-43-2	0.00143	U	0.00143	0.005	0.00143	mg/L	3/22/04	20:07	96367	1	zfl
Chlorobenzene	108-90-7	0.00155	U	0.00155	0.005	0.00155	mg/L	3/22/04	20:07	96367	1	zfl
Ethylbenzene	100-41-4	0.00137	U	0.00137	0.005	0.00137	mg/L	3/22/04	20:07	96367	1	zfl
Methylene Chloride	75-09-2	0.0013	U	0.0013	0.005	0.0013	mg/L	3/22/04	20:07	96367	1	zfl
Toluene	108-88-3	- 0.00136	U	0.00136	0.005	0.00136	mg/L	3/22/04	20:07	96367	1	zfl
Xylenes (total)	1330-20-7	0.00441	U	0.00441	0.015	0.00441	mg/L	3/22/04	20:07	96367	1	zfl

Form I



Date:

4/7/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270473

MW-01A-1SA04

Laboratory Sample ID: 270473-003

Date/Time Sampled 3/17/04

Sample Matrix: Water

Date/Time Received: 3/18/04

12:26

10:40

TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis D	Pate/Time	Batch	D.F.	Analyst
Method: SW-846 8270C; Water						#111111111			e conductió is accomo o		DETECTION	14.00
1,2-Diphenylhydrazine	122-66-7	0.00005	U	0.00005	0.0001	0.00005	mg/L	3/30/04	21:44	97046	1	acn
2,4-Dimethylphenol	105-67-9	0.000116	U	0.000122	0.0005	0.000116	mg/L	3/24/04	12:55	97017	1	acn
2,4-Dinitrotoluene	121-14-2	0.000009	U	0.000009	0.0001	0.000009	mg/L	3/30/04	21:44	97046	1	acn
2,6-Dinitrotoluene	606-20-2	0.000026	U	0.000027	0.0001	0.000026	mg/L	3/30/04	21:44	97046	1	acn
2-Chloronaphthalene	91-58-7	0.000076	U	0.00008	0.0005	0.000076	mg/L	3/24/04	12:55	97017	1	acn
2-Methyl-4,6-dinitrophenol	534-52-1	0.000295	U	0.00031	0.0015	0.000295	mg/L	3/24/04	12:55	97017	1	acn
2-Methylnaphthalene	91-57-6	0.005221		0.00007	0.0005	0.000067	mg/L	3/24/04	12:55	97017	1	acn
4-Nitrophenol	100-02-7	0.000285	U	0.000299	0.0015	0.000285	mg/L	3/24/04	12:55	97017	1	acn
Acenaphthene	83-32-9	0.04226		0.000078	0.0005	0.000074	mg/L	3/24/04	12:55	97017	1	acn
Acenaphthylene	208-96-8	0.000785		0.00008	0.0005	0.000076	mg/L ·	3/24/04	12:55	97017	1	acn
Anthracene	120-12-7	0.001854		0.00013	0.0005	0.000124	mg/L	3/24/04	12:55	97017	1	acn
Benzo(a)anthracene	56-55-3	0.000267	U	0.00028	0.0005	0.000267	mg/L	3/24/04	12:55	97017	1	acn
Benzo(a)pyrene	50-32-8	0.000007	U	0.000007	0.0001	0.000007	mg/L	3/30/04	21:44	97046	1	acn
bis(2-chloroethoxy)methane	111-91-1	0.000009	U	0.000009	0.0001	0.000009	mg/L	3/30/04	21:44	97046	1	acn

Form I

9 ∞



Date:

4/7/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270473

MW-01A-1SA04

Laboratory Sample ID: 270473-003

Date/Time Sampled 3/17/04

Sample Matrix Water

Date/Time Received: 3/18/04

10:40 12:26

TEST, METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis D	ate/Time	Batch	D.F.	Analyst	1
bis(2-ethylhexyl)phthalate	117-81-7	0.000973	U	0.00018	0.0005	0.000172	mg/L	3/24/04	12:55	97017	1		18C
Chrysene	218-01-9	0.00009	U	0.000094	0.0005	0.00009	mg/L	3/24/04	12:55	97017	1	acn	
Dibenzofuran	132-64-9	0.0194	·	0.00008	0.0005	0.000076	mg/L	3/24/04	12:55	97017	1	acn	
Di-n-butyl Phthalate	84-74-2	0.000691	ų	0.00015	0.0005	0.000143	mg/L	3/24/04	12:55	97017	1	acn	Lesc.
Fluoranthene	206-44-0	0.003337		0.000098	0.0005	0.000093	mg/L	3/24/04	12:55	97017	1	acn	
Fluorene	86-73-7	0.02334		0.000071	0.0005	0.000068	mg/L	3/24/04	12:55	97017	1	acn	
Naphthalene	91-20-3	0.000919		0.00007	0.0005	0.000067	mg/L	3/24/04	12:55	97017	1	acn	
Nitrobenzene	98-95-3	0.000143	U	0.00015	0.0005	0.000143	mg/L	3/24/04	12:55	97017	1	acn	
n-Nitrosodiphenylamine	86-30-6	0.00009	U	0.000094	0.0005	0.00009	mg/L	3/24/04	12:55	97017	1	acn	
Pentachlorophenol	87-86-5	0.000038	UR	0.00004	0.0003	0.000038	mg/L	3/30/04	21:44	97046	1	acn	LBL
Phenanthrene	85-01-8	0.002194		0.000081	0.0005	0.000077	mg/L	3/24/04	12:55	97017	1	acn	
Phenol	108-95-2	0.0000953	U	0.0001	0.0005	0.0000953	mg/L	3/24/04	12:55	97017	1	acn	
Pyrene	129-00-0	0.00117		0.000088	0.0005	0.000084	mg/L	3/24/04	12:55	97017	1	acn	

Form I



Date:

4/7/04

9

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

Chris Young ATTN:

Customer Sample ID:

Job Number: 270473

P-12-1SA04

Laboratory Sample ID: 270473-004

Date/Time Sampled 3/17/04

Sample Matrix: Water

Date/Time Received: 3/18/04

12:50 12:26

TEST METHOD CAS# RESULT FLAG MDL MQL SQL. UNITS. Analysis Date/Time D.F. Batch Analyst Method: SW-846 8260B, Water 1,2-Dichloroethane 107-06-2 0.00136 U 0.00136 0.005 0.00136 mg/L 3/22/04 20:33 96367 zfl Benzene 71-43-2 0.00143 U 0.00143 0.005 0.00143 3/22/04 20:33 96367 mg/L zfl Chlorobenzene 108-90-7 U 0.00155 0.00155 0.005 0.00155 3/22/04 20:33 96367 mg/L 1 zfl Ethylbenzene 100-41-4 0.00137 U 0.00137 0.005 0.00137 mg/L 3/22/04 20:33 96367 1 zfl Methylene Chloride 75-09-2 0.0013 U 0.0013 0.005 0.0013 3/22/04 96367 mg/L 20:33 1 zfl 108-88-3 0.00136 0.005 0.00136 Toluene U 0.00136 mg/L 3/22/04 20:33 96367 zfl 1 Xylenes (total) 1330-20-7 0.00441 U 0.015 0.00441 0.00441 mg/L 3/22/04 20:33 96367 zfl



Job Number: 270473

TRRP Laboratory Test Results

4/7/04

Date:

CUSTOMER: ERM Southwest, Inc.- Houston PROJECT: UPRR-HWPW-0014419 60 Chris Young ATTN:

Customer Sample ID: P-12-1SA04 Laboratory Sample ID: 270473-004

Date/Time Sampled 3/17/04 12:50 Sample Matrix: Water

Date/Time Received: 3/18/04 12:26

TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL,	UNITS	Analysis D	ate/Time	Batch	D.F.	Analyst
Method: SW-846 8270C, Water												
1,2-Diphenylhydrazine	122-66-7	0.00005	U	0.00005	0.0001	0.00005	mg/L	4/1/04	1:02	97046	1	acn
2,4-Dimethylphenol	105-67-9	0.000116	U	0.000122	0.0005	0.000116	mg/L	3/24/04	13:25	97017	1	acn
2,4-Dinitrotoluene	121-14-2	0.000009	U	0.000009	0.0001	0.000009	mg/L	4/1/04	1:02	97046	1	acn
2,6-Dinitrotoluene	606-20-2	0.000026	U	0.000027	0.0001	0.000026	mg/L	4/1/04	1:02	97046	1	acn
2-Chloronaphthalene	91-58-7	0.000076	U	0.00008	0.0005	0.000076	mg/L	3/24/04	13:25	97017	1	acn
2-Methyl-4,6-dinitrophenol	534-52-1	0.000295	U	0.00031	0.0015	0.000295	mg/L	3/24/04	13:25	97017	1	acn
2-Methylnaphthalene	91-57-6	0.000067	U	0.00007	0.0005	0.000067	mg/L	3/24/04	13:25	97017	1	acn
4-Nitrophenol	100-02-7	0.000285	U	0.000299	0.0015	0.000285	mg/L	3/24/04	13:25	97017	1	acn
Acenaphthene	83-32-9	0.000074	υ	0.000078	0.0005	0.000074	mg/L	3/24/04	13:25	97017	1	acn
Acenaphthylene	208-96-8	0.000076	υ	0.00008	0.0005	0.000076	mg/L	3/24/04	13:25	97017	1	acn
Anthracene	120-12-7	0.000124	υ	0.00013	0.0005	0.000124	mg/L	3/24/04	13:25	97017	1	acn
Benzo(a)anthracene	56-55-3	0.000267	υ	0.00028	0.0005	0.000267	mg/L	3/24/04	13:25	97017	1	acn
Benzo(a)pyrene	50-32-8	0.000007	υ	0.000007	0.0001	0.000007	mg/L	4/1/04	1:02	97046	1	acn
bis(2-chloroethoxy)methane	111-91-1	0.000009	υ	0.000009	0.0001	0.000009	mg/L	4/1/04	1:02	97046	1	acn

Form I



Date: 4/7/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270473

P-12-1SA04

Laboratory Sample ID: 270473-004

Date/Time Sampled 3/17/04

Sample Matrix Water

Date/Time Received: 3/18/04

12:50 12:26

TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis D	ate/Time	Batch	D.F.	Analyst	1
bis(2-ethylhexyl)phthalate	117-81-7	0.001748	u	0.00018	0.0005	0.000172	mg/L	3/24/04	13:25	97017	1	Analyst acn	
Chrysene	218-01-9	0.00009	U	0.000094	0.0005	0.00009	mg/L	3/24/04	13:25	97017	1	acn	48c
Dibenzofuran	132-64-9	0.000076	U	0.00008	0.0005	0.000076	mg/L mg/L	3/24/04	13:25	97017	1		-
Di-n-butyl Phthalate	84-74-2	0.000922									1	acn	
			u	0.00015	0.0005	0.000143	mg/L	3/24/04	13:25	97017	1	acn 4	العادي
Fluoranthene	206-44-0	0.000093	U	0.000098	0.0005	0.000093	mg/L	3/24/04	13:25	97017	1 ;	acn	
Fluorene	86-73-7	0.000068	U	0.000071	0.0005	0.000068	mg/L	3/24/04	13:25	97017	1	acn	
Naphthalene	91-20-3	0.000067	U	0.00007	0.0005	0.000067	mg/L	3/24/04	13:25	97017	1	acn	
Nitrobenzene	98-95-3	0.000143	U	0.00015	0.0005	0.000143	mg/L	3/24/04	13:25	97017	1	acn	
n-Nitrosodiphenylamine	86-30-6	0.00009	U	0.000094	0.0005	0.00009	mg/L	3/24/04	13:25	97017	1	acn	
Pentachlorophenol	87-86-5	0.000337	JL	0.00004	0.0003	0.000038	mg/L	4/1/04	1:02	97046	1	acn	LBL
Phenanthrene	85-01-8	0.000077	U	0.000081	0.0005	0.000077	mg/L:	3/24/04	13:25	97017	1	acn	
Phenol	108-95-2	0.0000953	U	0.0001	0.0005	0.0000953	mg/L	3/24/04	13:25	97017	1	acn	
Pyrene	129-00-0	0.007348		0.000088	0.0005	0.000084	mg/L	3/24/04	13:25	97017	1	acn	

Form I



4/7/04 Date:

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270473

P-11-1SA04

Laboratory Sample ID: 270473-005

Date/Time Sampled 3/17/04

Sample Matrix Water

Date/Time Received: 3/18/04

8:55 12:26

TEST METHOD : 1	CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis D	ate/Time	Batch	D.F.	Analyst
Method: SW-846 8260B, Water												
1,2-Dichloroethane	107-06-2	0.00136	U	0.00136	0.005	0.00136	mg/L	3/23/04	13:15	96367	1	zfl
Benzene	71-43-2	0.00143	U	0.00143	0.005	0.00143	mg/L	3/23/04	13:15	96367	1	zfl
Chlorobenzene	108-90-7	0.00155	U	0.00155	0.005	0.00155	mg/L	3/23/04	13:15	96367	1	zfl
Ethylbenzene	100-41-4	0.00137	ប	0.00137	0.005	0.00137	mg/L	3/23/04	13:15	96367	1	zfl
Methylene Chloride	75-09-2	0.0013	υ	0.0013	0.005	0.0013	mg/L	3/23/04	13:15	96367	1	zfl
Toluene	108-88-3	0.00136	υ	0.00136	0.005	0.00136	mg/L	3/23/04	13:15	96367	1	zfl
Xylenes (total)	1330-20-7	0.00441	υ	0.00441	0.015	0.00441	mg/L	3/23/04	13:15	96367	1	zfl

Form I



CUSTOMER: ERM Southwest, Inc.- Houston

TRRP Laboratory Test Results

Date:

4/7/04

Job Number: 270473

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

P-11-1SA04

Laboratory Sample ID: 270473-005

Date/Time Sampled 3/17/04

Sample Matrix Water

Date/Time Received: 3/18/04

8:55 12:26

TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis D	ate/Time	Batch	D.F.	Analyst	
Method: SW-846 8270C, Water												###5	3-04
1,2-Diphenylhydrazine	122-66-7	0.00005	UW	0.00005	0.0001	0.00005	mg/L	4/1/04	0:33	97046	1	acn	SE-
2,4-Dimethylphenol	105-67-9	0.000116	Ū	0.000122	0.0005	0.000116	mg/L	3/24/04	10:24	97017	1	acn	
2,4-Dinitrotoluene	121-14-2	0.000009	Uw	0.000009	0.0001	0.000009	mg/L	4/1/04	0:33	97046	1	acn	een
2,6-Dinitrotoluene	606-20-2	0.000026	υω	0.000027	0.0001	0.000026	mg/L	4/1/04	0:33	97046	1	acn (æ
2-Chloronaphthalene	91-58-7	0.000076	U	0.00008	0.0005	0.000076	mg/L	3/24/04	10:24	97017	1	acn	
2-Methyl-4,6-dinitrophenol	534-52-1	0.000295	U	0.00031	0.0015	0.000295	mg/L	3/24/04	10:24	97017	1	acn	
2-Methylnaphthalene	91-57-6	0.001097		0.00007	0.0005	0.000067	mg/L	3/24/04	10:24	97017	1	acn	
4-Nitrophenol	100-02-7	0.000285	U	0.000299	0.0015	0.000285	mg/L	3/24/04	10:24	97017	1	acn	
Acenaphthene	83-32-9	0.1301		0.000078	0.0005	0.00037	mg/L	3/26/04	15:13	97017	5	acn	
Acenaphthylene	208-96-8	0.000076	Ü	0.00008	0.0005	0.000076	mg/L	3/24/04	10:24	97017	1	acn	
Anthracene	120-12-7	0.005611		0.00013	0.0005	0.000124	mg/L	3/24/04	10:24	97017	1	acn	
Benzo(a)anthracene	56-55-3	0.000267	U	0.00028	0.0005	0.000267	mg/L	3/24/04	10:24	97017	1	acn	
Benzo(a)pyrene	50-32-8	0.000007	υW	0.000007	0.0001	0.000007	mg/L '	4/1/04	0:33	97046	1	acn d	BC-
bis(2-chloroethoxy)methane	111-91-1	0.000009	UW	0.000009	0.0001	0.000009	mg/L	4/1/04	0:33	97046	1	acn 4	BC

Form I



Date: 4/7/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60 ATTN: Chris Young

Customer Sample ID:

P-11-1SA04

Laboratory Sample ID: 270473-005

Date/Time Sampled 3/17/04

Job Number: 270473

Sample Matrix: Water

Date/Time Received: 3/18/04

8:55 12:26

TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis D	ate/Time	Batch	D.F.	Analyst
bis(2-ethylhexyl)phthalate	117-81-7	0.000904	u	0.00018	0.0005	0.000172	mg/L	3/24/04	10:24	97017	1	acn aga.
Chrysene	218-01-9	0.00009	U	0.000094	0.0005	0.00009	mg/L	3/24/04	10:24	97017	1	acn
Dibenzofuran	132-64-9	0.003985		0.00008	0.0005	0.000076	mg/L	3/24/04	10:24	97017	1	acn
Di-n-butyl Phthalate	84-74-2	0.000923	u	0.00015	0.0005	0.000143	mg/L	3/24/04	10:24	97017	1	acn use
Fluoranthene	206-44-0	0.008623		0.000098	0.0005	0.000093	mg/L	3/24/04	10:24	97017	1	acn
Fluorene	86-73-7	0.05025		0.000071	0.0005	0.00034	mg/L	3/26/04	15:13	97017	5	acn
Naphthalene	91-20-3	0.007031		0.00007	0.0005	0.000067	mg/L	3/24/04	10:24	97017	1	acn
Nitrobenzene	98-95-3	0.000143	U	0.00015	0.0005	0.000143	mg/L	3/24/04	10:24	97017	1	acn
n-Nitrosodiphenylamine	86-30-6	0.00009	U	0.000094	0.0005	0.00009	mg/L	3/24/04	10:24	97017	1	acn
Pentachlorophenol	87-86-5	0.000038	UR	0.00004	0.0003	0.000038	mg/L	4/1/04	0:33	97046	1	acn 436-
Phenanthrene	85-01-8	0.01956		0.000081	0.0005	0.000077	mg/L	3/24/04	10:24	97017	1	acn
T Phenol	108-95-2	0.0000953	U	0.0001	0.0005	0.0000953	mg/L	3/24/04	10:24	97017	1	acn
Pyrene	129-00-0	0.00445		0.000088	0.0005	0.000084	mg/L	3/24/04	10:24	97017	1	acn

Form I



Job Number: 270473

TRRP Laboratory Test Results

Date: 4/7/04

CUSTOMER: ERM Southwest, Inc.- Houston PROJECT: UPRR-HWPW-0014419 60 ATTN: Chris Young

Customer Sample ID: P-11 MS-1SA04 Laboratory Sample ID: 270473-006

Date/Time Received: 3/18/04 12:26

TEST METHOD	CAS#	RESULT	FLAG	MIN	MOI	* COI	UNITS	Analysis I	Octo/Time	Datah	D.F.	Analyiet
titionisti karing dan di managan dan kanagan dan bahar dan bahar dan bahar dan bahar dan bahar dan bahar dan b	بالأعثاث تتليبا بتجافعت عليد تعامي	KESUL1	A TOTAL COLUMN	MDL	MQL	* SQL	UNITS :	Allaiysis L	A CONTRACTOR OF THE PARTY OF TH	A STATE OF THE STA	in a second	Analyst
Method: SW-846 8260B, Water											14, 1134	
1,2-Dichloroethane	107-06-2	0.052		0.00136	0.005	0.00136	mg/L	3/23/04	14:09	96367	1	zfl
Benzene	71-43-2	0.045		0.00143	0.005	0.00143	mg/L	3/23/04	14:09	96367	1	zfl
Chlorobenzene	108-90-7	0.0602		0.00155	0.005	0.00155	mg/L	3/23/04	14:09	96367	1	zfl
Ethylbenzene	100-41-4	0.0591		0.00137.	0.005	0.00137	mg/L	3/23/04	14:09	96367	1	zfl
Methylene Chloride	75-09-2	0.0457		0.0013	0.005	0.0013	mg/L	3/23/04	14:09	96367	1	zfl
Toluene	108-88-3	0.0574	ļ	0.00136	0.005	0.00136	mg/L	3/23/04	14:09	96367	1	zfl
Xylenes (total)	1330-20-7	0.175		0.00441	0.015	0.00441	mg/L	3/23/04	14:09	96367	1	zfl

o)

Form I Page 33



Job Number: 270473 Date:

CUSTOMER: ERM Southwest, Inc.- Houston PROJECT: UPRR-HWPW-0014419 60 ATTN: Chris Young

Customer Sample ID:

P-11 MS-1SA04

Date/Time Sampled 3/17/04

9:20

Date/Time Received: 3/18/04

12:26

Laboratory Sample ID: 270473-006

4/7/04

Sample Matrix: Water

TEST METHOD	::. CAS #	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis Da	ate/Time	Batch	D.F.	Analyst
Method: SW-846 8270C, Water				Assistant property of the							No. of the last of	
1,2-Diphenylhydrazine	122-66-7	0.00096	ender at Allandamiaka tar	0.00005	0.0001	0.00005	mg/L	3/30/04	14:26	97046	1	acn
2,4-Dimethylphenol	105-67-9	0.007108		0.000122	0.0005	0.000116	mg/L	3/24/04	10:54	97017	1	acn
2,4-Dinitrotoluene	121-14-2	0.00089		0.000009	0.0001	0.000009	mg/L	3/30/04	14:26	97046	1	acn
2,6-Dinitrotoluene	606-20-2	0.000869		0.000027	0.0001	0.000026	mg/L	3/30/04	14:26	97046	1	acn
2-Chloronaphthalene	91-58-7	0.008183		0.00008	0.0005	0.000076	mg/L	3/24/04	10:54	97017	1	acn
2-Methyl-4,6-dinitrophenol	534-52-1	0.01457		0.00031	0.0015	0.000295	mg/L	3/24/04	10:54	97017	1	acn
2-Methylnaphthalene	91-57-6	0.008782		0.00007	0.0005	0.000067	mg/L	3/24/04	10:54	97017	1	acn
4-Nitrophenol	100-02-7	0.002937		0.000299	0.0015	0.000285	mg/L	3/24/04	10:54	97017	1	acn
Acenaphthene	83-32-9	0.115		0.000078	0.0005	0.00037	mg/L	4/1/04	20:16	97017	5	acn
Acenaphthylene	208-96-8	0.008813		0.00008	0.0005	0.000076	mg/L	3/24/04	10:54	97017	1	acn
Anthracene	120-12-7	0.01343		0.00013	0.0005	0.000124	mg/L	3/24/04	10:54	97017	1	acn
Benzo(a)anthracene	56-55-3	0.008749		0.00028	0.0005	0.000267	mg/L	3/24/04	10:54	97017	1	acn
Benzo(a)pyrene	50-32-8	0.000762		0.000007	0.0001	0.000007	mg/L	3/30/04	14:26	97046	1	acn
bis(2-chloroethoxy)methane	111-91-1	0.000776		0.000009	0.0001	0.000009	mg/L	3/30/04	14:26	97046	1	acn

Form I



4/7/04 Date:

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270473

P-11 MS-1SA04

Laboratory Sample ID: 270473-006

Date/Time Sampled 3/17/04

Sample Matrix: Water

9:20 12:26

Date/Time Received: 3/18/04

TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis Da	ite/Time	Batch	D.F.	Analyst
bis(2-ethylhexyl)phthalate	117-81-7	0.006581		0.00018	0.0005	0.000172	mg/L	3/24/04	10:54	97017	1	acn
Chrysene	218-01-9	0.008946		0.000094	0.0005	0.00009	mg/L	3/24/04	10:54	97017	1	acn
Dibenzofuran	132-64-9	0.01175		0.00008	0.0005	0.000076	mg/L	3/24/04	10:54	97017	1	acn
Di-n-butyl Phthalate	84-74-2	0.009483		0.00015	0.0005	0.000143	mg/L	3/24/04	10:54	97017	1	acn
Fluoranthene	206-44-0	0.01768		0.000098	0.0005	0.000093	mg/L	· 3/24/04	10:54	97017	1	acn
Fluorene	86-73-7	0.04594		0.000071	0.0005	0.000068	mg/L	3/24/04	10:54	97017	1	acn
Naphthalene	91-20-3	0.01838		0.00007	0.0005	0.000067	mg/L	3/24/04	10:54	97017	1	acn
Nitrobenzene	98 - 95-3	0.007007		0.00015	0.0005	0.000143	mg/L	3/24/04	10:54	97017	1	acn
n-Nitrosodiphenylamine	86-30-6	0.009583		0.000094	0.0005	0.00009	mg/L	3/24/04	10:54	97017	1	acn
Pentachlorophenol	87-86-5	0.000038	U	0.00004	0.0003	0.000038	mg/L	3/30/04	14:26	97046	1	acn
Phenanthrene	85-01-8	0.02322	÷	0.000081	0.0005	0.000077	mg/L	3/24/04	10:54	97017	1	acn
Phenol	108-95-2	0.003133		0.0001	0.0005	0.0000953	mg/L	3/24/04	10:54	97017	1	acn
Pyrene	129-00-0	0.01345		0.000088	0.0005	0.000084	mg/L	3/24/04	10:54	97017	1	acn

Form I



Date: 4/7/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60 ATTN: Chris Young

Customer Sample ID:

Job Number: 270473

P-11 MSD-1SA04

Laboratory Sample ID: 270473-007

3/23/04

3/23/04

15:03

15:03

96367

96367

zfl

zfl

Date/Time Sampled 3/17/04

Sample Matrix: Water

mg/L

mg/L

Date/Time Received: 3/18/04

9:50 12:26

108-88-3

1330-20-7

0.054

0.164

TEST METHOD CAS# Analysis Date/Time Batch MQL SQL D.F. MDL UNITS Analyst RESULT FLAG Method: SW-846 8260B, Water 3/23/04 1.2-Dichloroethane 107-06-2 0.0498 0.00136 0.005 0.00136 mg/L 15:03 96367 zfl 71-43-2 0.042 0.00143 0.005 0.00143 mg/L 3/23/04 15:03 96367 zfl Benzene 0.00155 3/23/04 15:03 96367 zfl Chlorobenzene 108-90-7 0.00155 0.005 mg/L 0.0574 100-41-4 0.00137 mg/L 3/23/04 15:03 96367 1 zfl Ethylbenzene 0.0553 0.00137 0.005 Methylene Chloride 3/23/04 15:03 96367 zfl 75-09-2 0.0419 0.0013 0.005 0.0013 mg/L

0.00136

0.00441

0.005

0.015

0.00136

0.00441

Form I

Toluene

Xylenes (total)



Date:

4/7/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

Chris Young

Customer Sample ID:

Job Number: 270473

P-11 MSD-1SA04

Laboratory Sample ID: 270473-007

ATTN:

Date/Time Sampled 3/17/04

Sample Matrix: Water

Date/Time Received: 3/18/04

9:50 12:26

TEST METHOD CAS# RESULT **FLAG** MDL MQL SQL UNITS Analysis Date/Time Batch D.F. Analyst Method: SW-846 8270C, Water 1,2-Diphenylhydrazine 122-66-7 0.0008 0.00005 0.0001 0.00005 mg/L 3/30/04 14:55 97046 1 acn 2,4-Dimethylphenol 105-67-9 0.007212 0.000122 0.0005 0.000116 3/24/04 mg/L 11:24 97017 1 2.4-Dinitrotoluene 121-14-2 0.000862 0.000009 0.0001 0.000009 3/30/04 97046 mg/L 14:55 1 acn 2,6-Dinitrotoluene 606-20-2 0.000879 0.000027 0.0001 0.000026 mg/L 3/30/04 14:55 97046 1 acn 2-Chloronaphthalene 91-58-7 0.008028 0.00008 0.0005 0.000076 mg/L 3/24/04 11:24 97017 1 acn 2-Methyl-4,6-dinitrophenol 534-52-1 0.01439 0.00031 0.0015 0.000295 97017 mg/L 3/24/04 11:24 1 acn 2-Methylnaphthalene 91-57-6 0.008967 0.00007 0.0005 0.000067 3/24/04 97017 mg/L 11:24 1 acn 4-Nitrophenol 100-02-7 0.004705 0.000299 0.0015 0.000285 mg/L 3/24/04 11:24 97017 1 acn Acenaphthene 83-32-9 0.1004 0.000078 0.0005 0.00037 4/1/04 mg/L 20:46 97017 acn Acenaphthylene 208-96-8 0.008463 0.00008 0.0005 0.000076 3/24/04 11:24 97017 mg/L 1 acn Anthracene 120-12-7 0.01314 0.00013 0.0005 0.000124 3/24/04 97017 mg/L 11:24 1 acn Benzo(a)anthracene 56-55-3 0.008396 0.00028 0.0005 0.000267 mg/L 3/24/04 11:24 97017 1 acn Benzo(a)pyrene 50-32-8 0.000779 0.000007 0.0001 0.000007 mg/L 3/30/04 14:55 97046 1 acn bis(2-chloroethoxy)methane 111-91-1 0.00074 0.000009 0.0001 0.000009 mg/L 3/30/04 14:55 97046 acn

Form I



Date:

4/7/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60 ATTN: Chris Young

Customer Sample ID:

Job Number: 270473

P-11 MSD-1SA04

Laboratory Sample ID: 270473-007

Date/Time Sampled 3/17/04

Sample Matrix: Water

Date/Time Received: 3/18/04

9:50 12:26

TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL	a UNITS	Analysis Da	ite/Time	Batch	D.F.	Analyst
bis(2-ethylhexyl)phthalate	117-81-7	0.007069		0.00018	0.0005	0.000172	mg/L	3/24/04	11:24	97017	1	acn
Chrysene	218-01-9	0.008753		0.000094	0.0005	0.00009	mg/L	3/24/04	11:24	97017	1	acn
Dibenzofuran	132-64-9	0.01117		0.00008	0.0005	0.000076	mg/L	3/24/04	11:24	97017	1	acn
Di-n-butyl Phthalate	84-74-2	0.009282		0.00015	0.0005	0.000143	mg/L	3/24/04	11:24	97017	1	acn
Fluoranthene	206-44-0	0.01683		0.000098	0.0005	0.000093	mg/L	3/24/04	11:24	97017	1	acn
Fluorene	86-73-7	0.04196		0.000071	0.0005	0.000068	mg/L	3/24/04	11:24	97017	1	acn
Naphthalene	91-20-3	0.01966		0.00007	0.0005	0.000067	mg/L	3/24/04	11:24	97017	1	acn
Nitrobenzene	98-95-3	0.00778		0.00015	0.0005	0.000143	mg/L	3/24/04	11:24	97017	1	acn
n-Nitrosodiphenylamine	86-30-6	0.01004		0.000094	0.0005	0.00009	mg/L	3/24/04	11:24	97017	1	acn
Pentachlorophenol	87-86-5	0.000038	U	0.00004	0.0003	0.000038	mg/L	3/30/04	14:55	97046	1	acn
Phenanthrene	85-01-8	0.02084]	0.000081	0.0005	0.000077	mg/L	3/24/04	11:24	97017	1	acn
Phenol	108-95-2	0.003327		0.0001	0.0005	0.0000953	mg/L	3/24/04	11:24	97017	1	acn
Pyrene	129-00-0	0.01314		0.000088	0.0005	0.000084	mg/L	3/24/04	11:24	97017	1	acn

Form I



Date:

4/7/04

CUSTOMER: ERM Southwest, Inc.- Houston

PROJECT: UPRR-HWPW-0014419 60

ATTN: Chris Young

Customer Sample ID:

Job Number: 270473

FB-031704-1SA04

Laboratory Sample ID: 270473-008

Date/Time Sampled 3/17/04

Sample Matrix Field Blank

Date/Time Received: 3/18/04

12:26

13:00

TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis D	ate/Time	Batch	D.F.	Analyst
Method: SW-846 8260B, Water												#12E9#60]F
1,2-Dichloroethane	107-06-2	0.00136	U	0.00136	0.005	0.00136	mg/L	3/22/04	20:58	96367	1	zfl
Benzene	71-43-2	0.00143	U	0.00143	0.005	0.00143	mg/L	3/22/04	20:58	96367	1	zfl
Chlorobenzene	108-90-7	0.00155	U	0.00155	0.005	0.00155	mg/L	3/22/04	20:58	96367	1	zfl
Ethylbenzene	100-41-4	0.00137	U	0.00137	0.005	0.00137	mg/L	3/22/04	20:58	96367	1	zfl
Methylene Chloride	75-09-2	0.0013	U	0.0013	0.005	0.0013	mg/L	3/22/04	20:58	96367	1	zfl
Toluene	108-88-3	0.00136	U	0.00136	0.005	0.00136	mg/L	3/22/04	20:58	96367	1	zfl
Xylenes (total)	1330-20-7	0.00441	U	0.00441	0.015	0.00441	mg/L	3/22/04	20:58	96367	1	zfl

Form I



CUSTOMER: ERM Southwest, Inc.- Houston

TRRP Laboratory Test Results

Job Number: 270473

PROJECT: UPRR-HWPW-0014419 60

Date: 4/7/04

Customer Sample ID:

FB-031704-1SA04

Laboratory Sample ID: 270473-008

Date/Time Sampled 3/17/04

13:00

Sample Matrix Field Blank

ATTN: Chris Young

Date/Time Received: 3/18/04

12:26

TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis Da	ate/Time	Batch	D.F.	Analys
Method: SW-846 8270C, Water												######################################
1,2-Diphenylhydrazine	122-66-7	0.00005	U	0.00005	0.0001	0.00005	mg/L	4/2/04	12:20	97046	1	acn
2,4-Dimethylphenol	105-67-9	0.000116	U	0.000122	0.0005	0.000116	mg/L	3/24/04	13:55	97017	1	acn
2,4-Dinitrotoluene	121-14-2	0.000009	U	0.000009	0.0001	0.000009	mg/L	4/2/04	12:20	97046	1	acn
2,6-Dinitrotoluene	606-20-2	0.000026	ับ	0.000027	0.0001	0.000026	mg/L	4/2/04	12:20	97046	1	acn
2-Chloronaphthalene	91-58-7	0.000076	ับ	0.00008	0.0005	0.000076	mg/L	3/24/04	13:55	97017	1	acn
2-Methyl-4,6-dinitrophenol	534-52-1	0.000295	ับ	0.00031	0.0015	0.000295	mg/L	3/24/04	13:55	97017	1	acn
2-Methylnaphthalene	91-57-6	0.000067	. U	0.00007	0.0005	0.000067	mg/L	3/24/04	13:55	97017	1	acn
4-Nitrophenol	100-02-7	0.000285	U	0.000299	0.0015	0.000285	mg/L	3/24/04	13:55	97017	1	acn
Acenaphthene	83-32-9	0.000074	U	0.000078	0.0005	0.000074	mg/L	3/24/04	13:55	97017	1	acn
Acenaphthylene	208-96-8	0.000076	U	0.00008	0.0005	0.000076	mg/L	3/24/04	13:55	97017	1	acn
Anthracene	120-12-7	0.000124	U	0.00013	0.0005	0.000124	mg/L	3/24/04	13:55	97017	1	acn
Benzo(a)anthracene	56-55-3	0.000267	U	0.00028	0.0005	0.000267	mg/L	3/24/04	13:55	97017	1	acn
Benzo(a)pyrene	50-32-8	0.000007	U	0.000007	0.0001	0.000007	mg/L	4/2/04	12:20	97046	1	acn
bis(2-chloroethoxy)methane	111-91-1	0.000009	U	0.000009	0.0001	0.000009	mg/L	4/2/04	12:20	97046	1	acn

Form I



Job Number: 270473 Date: 4/7/04

CUSTOMER: ERM Southwest, Inc.- Houston PROJECT: UPRR-HWPW-0014419 60 ATTN: Chris Young

Customer Sample ID: FB-031704-1SA04 Laboratory Sample ID: 270473-008

Date/Time Sampled: 3/17/04 13:00 Sample Matrix: Field Blank

Date/Time Received: 3/18/04 12:26

TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS.	Analysis Da	ite/Time	Batch	D.F.	Analyst
bis(2-ethylhexyl)phthalate	117-81-7	0.000172	U	0.00018	0.0005	0.000172	mg/L	3/24/04	13:55	97017	1	acn
Chrysene	218-01-9	0.00009	U	0.000094	0.0005	0.00009	mg/L	3/24/04	13:55	97017	1	acn
Dibenzofuran	132-64-9	0.000076	Ŭ	0.00008	0.0005	0.000076	mg/L	3/24/04	13:55	97017	1	acn
Di-n-butyl Phthalate	84-74-2	0.000361	J	0.00015	0.0005	0.000143	mg/L	3/24/04	13:55	97017	1	acn
Fluoranthene	206-44-0	0.000093	U	0.000098	0.0005	0.000093	mg/L	3/24/04	13:55	97017	1	acn
Fluorene	86-73-7	0.000068	U	0.000071	0.0005	0.000068	mg/L	3/24/04	13:55	97017	1	acn
Naphthalene	91-20-3	0.000067	U	0.00007	0.0005	0.000067	mg/L	3/24/04	13:55	97017	1	acn
Nitrobenzene	98-95-3	0.000143	U	0.00015	0.0005	0.000143	mg/L	3/24/04	13:55	97017	1	acn
n-Nitrosodiphenylamine	86-30-6	0.00009	U	0.000094	0.0005	0.00009	mg/L	3/24/04	13:55	97017	1	acn
Pentachlorophenol	87-86-5	0.000038	ับ	0.00004	0.0003	0.000038	mg/L	4/2/04	12:20	97046	1	acn
Phenanthrene	85-01-8	0.000077	U	0.000081	0.0005	0.000077	mg/L	3/24/04	13:55	97017	1	acn
Phenol	108-95-2	0.0000953	U	0.0001	0.0005	0.0000953	mg/L	3/24/04	13:55	97017	1	acn
Pyrene	129-00-0	0.000084	U	0.000088	0.0005	0.000084	mg/L	3/24/04	13:55	97017	1	acn

Form I Page 41



Date: 4/7/04

CUSTOMER: ERM Southwest, Inc.- Houston PROJECT: UPRR-HWPW-0014419 60 ATTN: Chris Young

0:00

Customer Sample ID: TB02-1SA04

Laboratory Sample ID: 270473-009

Date/Time Sampled: 3/17/04

Job Number: 270473

Sample Matrix: Trip Blank

Date/Time Received: 3/18/04 12:26

TEST METHOD	CAS#	RESULT	FLAG	MDL	MQL	SQL	UNITS	Analysis D	ate/Time	Batch	D.F.	Analyst
Method: SW-846 8260B, Water												
1,2-Dichloroethane	107-06-2	0.00136	υ	0.00136	0.005	0.00136	mg/L	3/22/04	21:24	96367	1	zfl
Benzene	71-43-2	0.00143	υ	0.00143	0.005	0.00143	mg/L	3/22/04	21:24	96367	1	zfl
Chlorobenzene	108-90-7	0.00155	U	0.00155	0.005	0.00155	mg/L	3/22/04	21:24	96367	1	zfl
Ethylbenzene	100-41-4	0.00137	υ	0.00137	0.005	0.00137	mg/L	3/22/04	21:24	96367	1	zfl
Methylene Chloride	75-09-2	0.0013	υ	0.0013	0.005	0.0013	mg/L	3/22/04	21:24	96367	1	zfl
Toluene	108-88-3	0.00136	ับ	0.00136	0.005	0.00136	mg/L	3/22/04	21:24	96367	1	zfl
Xylenes (total)	1330-20-7	0.00441	. U	0.00441	0.015	0.00441	mg/L	3/22/04	21:24	96367	1	zfl

Form I



	Job Number.: 270473	QUALITY	CONTRO	L RI	ESULT	S	Report	Date.: 04/07,	/200	4	
CUSTOMER: E	RM Southwest, Inc Houston	PROJEC	T: UPRR-HWPW-	001441	9 60		ATTN:	Chris Young			
QC Type	Description	·	Reag. Cod	e	Lab	ID	Dilut	ion Factor	Da	te Ti	те
	: SW-846 8270C ription.: Semivolatile Organ	nics - SIM Analysi			: ug, 97046	/L		Analyst	:	acn	
LCS	Laboratory Control Sample		SVS031904J		96171			· ·)3/2	6/2004 1	1643
Para	meter/Test Description	QC Result	QC Result	True	Value	Orig.	Value	Calc. Result	*	Limits	F
,4-Dinitroto ,6-Dinitroto entachloroph	thoxy)methane, Water Duene, Water Duene, Water	0.40815 0.39598 0.34998 0.38170 0.44238 0.35261			0.500000 0.500000 0.500000 0.500000 0.500000 0.500000		0 0 0 0 0	81.6 79.2 70.0 76.3 88.5 70.5		30-130 30-130 60-140 60-140 30-130 30-130	
MB	Method Blank		svs030204B		96171				03/2	6/2004 ′	1614
Para	meter/Test Description	QC Result	QC Result	True	Value	Orig.	Value	Calc. Result	*	Limits	F
,4-Dinitroto ,6-Dinitroto entachloroph	ethoxy)methane, Water bluene, Water bluene, Water	0 0 0 0 0			·						
MS	Matrix Spike		SVS031904K		270487-5				03/2	7/2004 (0101
Para	meter/Test Description	QC Result	QC Result	True	Value	Orig.	Value	Calc. Result	*	Limits	F
,4-Dinitroto ,6-Dinitroto entachloroph	thoxy)methane, Water luene, Water luene, Water	0.00533 0.32463 0.37354 0.05316 0.07038 0.49820			0.500000 0.500000 0.500000 0.500000 0.500000		0 0 0 0 0.08095	1 65 75 11 -2 100		30-130 30-130 24-96 30-130 5-103 60-140	A A A
MS	Matrix Spike		SVS031904K		270473-6				03/3	0/2004 ′	1426
Para	meter/Test Description	QC Result	QC Result	True	Value	Orig.	Value	Calc. Result	*	Limits	F
4-Dinitroto 6-Dinitroto entachloroph	thoxy)methane, Water luene, Water luene, Water	0.39981 0.40727 0.46723 0.45608 0 0.50650			0.500000 0.500000 0.500000 0.500000 0.500000		0 0 0 0 0	80 81 93 91 0		30-130 30-130 24-96 30-130 5-103 60-140	Α

Page 43 * %=% REC, R=RPD, A=ABS Diff., D=% Diff.

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Job Number.: 270473	QUALITY	CONTROL	RESULTS	Report	Date.: 04/07/	2004
CUSTOMER: ERM Southwest, Inc Houston	PROJEC	T: UPRR-HWPW-0014	419 60 Lab ID	ATTN:	ion Factor	Dota Time
de Type Description		Reag. Code	Lab 10	Dittat	TON FACTOR	Date Time
MSD Matrix Spike Duplicate		svs031904K	270487-6		C	3/27/2004 0131
Parameter/Test Description	QC Result	QC Result Tr		. Value	Calc. Result	* Limits F
Benzo(a)pyrene, Water	0.38920	0.00533	0.500000	0	78 194.6	30.0-130.0 40.0 A
bis(2-chloroethoxy)methane, Water	0.08520	0.32463	0.500000	0	17 116.8	30.0-130.0 A 30.0 A
2,4-Dinitrotoluene, Water	0.42472	0.37354	0.500000	0	85 12.8	24.0-96.0 30.0
2,6-Dinitrotoluene, Water	0.36223	. 0.05316	0.500000	0	72 148.8	30.0-130.0 30.0 A
Pentachlorophenol, Water	0.44253	0.07038	0.500000	0.08095		5.0-103.0
1,2-Diphenylhydrazine, Water	0.37416	0.49820	0.500000	0	75 28.6	40.0 A 60.0-140.0 40.0
MSD Matrix Spike Duplicate	OS Passila	svs031904k	270473-7	Value		3/30/2004 1455
Parameter/Test Description Benzo(a)pyrene, Water	QC Result 0.40878	QC Result Tr	ue Value Orig 0.500000	. Value 0	Calc. Result 82	* Limits F 30.0-130.0
bis(2-chloroethoxy)methane, Water	0.38843	0.40727	0.500000	0	2.2 78	40.0 30.0-130.0
u .					4.7	30.0
2,4-Dinitrotoluene, Water	0.45250	0.46723	0.500000	0	90 3.2	24.0-96.0 30.0
2,6-Dinitrotoluene, Water	0.46132	0.45608	0.500000	0	92 1.1	30.0-130.0 30.0
Pentachlorophenol, Water	0	0	0.500000	0	· 0 0.0	5.0-103.0 A 40.0
1,2-Diphenylhydrazine, Water	0.42003	0.50650	0.500000	0	84 18.7	60.0-140.0 40.0
Test Method: SW-846 8270C Method Description.: Semivolatile Organi	ics, Low Level	Units Batch(s)	: ug/L : 97017		Analyst.	: acn
LCS Laboratory Control Sample		SVS031904J	96170		0	3/24/2004 0954
Parameter/Test Description	QC Result	QC Result Tr	ue Value Orig	. Value	Calc. Result	* Limits F
Acenaphthene, Water Acenaphthylene, Water Anthracene, Water Benzo(a)anthracene, Water bis(2-ethylhexyl)phthalate, Water 2-Chloronaphthalene, Water Chrysene, Water Dibenzofuran, Water Di-n-butyl Phthalate, Water Fluoranthene, Water Fluorene, Water	4.51515 4.28688 4.69058 4.59001 4.43400 4.14884 4.87471 4.33981 4.88014 4.99281 4.54334		5.000000 5.000000 5.000000 5.000000 5.000000 5.000000 5.000000 5.000000 5.000000		90.3 85.7 93.8 91.8 88.7 83.0 97.5 86.8 97.6 99.9	32-165 10-150 23-178 25-180 25-173 23-143 23-180 35-153 28-185 28-180 30-189
2-Methylnaphthalene, Water Naphthalene, Water Nitrobenzene, Water	4.37877 4.50582 4.04906	Page 44	5.000000 5.000000 5.000000 * %=% REC, R=RPE), A=ABS [1 .	26-168 36-139 17-163
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Job Number.: 270473	QUALITY	CONTROL	RESULTS	Report Date.: 04/0	07/2004
CUSTOMER: ERM Southwest, Inc Houston	PROJEC	T: UPRR-HWPW-00	14419 60	ATTN:	
QC Type Description		Reag. Code	Lab ID	Dilution Factor	Date Time
LCS Laboratory Control Sample		svs031904J	96170		03/24/2004 0954
Parameter/Test Description	QC Result	QC Result	True Value O	Orig. Value Calc. Resul	t * Limits F
-Nitrosodiphenylamine, Water	4.22516		5.000000	84.5	58-174
henanthrene, Water yrene, Water	4.73803 4.79426		5.000000 5.000000	94.8 95.9	26-166 28-173
,4-Dimethylphenol, Water	3.98393		5.000000	79.7	23-157
-Methyl-4,6-dinitrophenol, Water	6.63299		5.000000	132.7	10-164
-Nitrophenol, Water	1.68863		5.000000	33.8	10-92
henol, Water	1.88209		5.000000	37.6	20-83
MB Method Blank		svs030204B	96170		03/24/2004 0924
Parameter/Test Description	QC Result	QC Result	True Value C	Orig. Value Calc. Resu	t * Limits F
cenaphthene, Water	0				
cenaphthylene, Water	0				
nthracene, Water	0				
enzo(a)anthracene, Water	· 0 0.46517				
is(2-ethylhexyl)phthalate, Water -Chloronaphthalene, Water	0.46517				•
hrysene, Water	0				
ibenzofuran, Water	Ö				
i-n-butyl Phthalate, Water	0				
luoranthene, Water	0				
luorene, Water	0				
-Methylnaphthalene, Water	0				
aphthalene, Water itrobenzene, Water	0				
-Nitrosodiphenylamine, Water	ő				
henanthrene, Water	Ö				
yrene, Water	0			•	
,4-Dimethylphenol, Water	0				
-Methyl-4,6-dinitrophenol, Water	0				•
-Nitrophenol, Water	0				
henol, Water	0				
MS Matrix Spike		SVS031904J	270473-6		03/24/2004 1054
Parameter/Test Description	QC Result			Drig. Value Calc. Resu	
cenaphthene, Water	53.3120		5.000000	60.1102 -136	
cenaphthylene, Water	4.62612		5.000000	0 93	30-130
nthracene, Water	7.04877		5.000000	2.94562 82	30-130
enzo(a)anthracene, Water	4.59274		5.000000	0 92	60-140
is(2-ethylhexyl)phthalate, Water	3.45457 4.29566		5.000000 5.000000	0.47470 60 0 86	60-140 30-130
-Chloronaphthalene, Water hrysene, Water	4.29366		5.000000	0 94	30-130
ibenzofuran, Water	6.16582		5.000000	2.09195 81	30-130
i-n-butyl Phthalate, Water	4.97772		5.000000	0.48477 90	30-130
luoranthene, Water	9.28271		5.000000	4.52645 95	30-130
luorene, Water	24.1132		5.000000	26.2599 -43	30-130 A
-Methylnaphthalene, Water	4.61007		5.000000	0.57605 81	60-140
aphthalene, Water	9.64878 3.67836		5.000000 5.000000	3.69100 119	30-130 30-130
·			2 111311111111	0 74	30-130
itrobenzene, Water	5.07050		3.00000		
·	3.07030	Page 45		R=RPD. A=ABS Diff D=%	Diff.
	3.07030	Page 45		R=RPD, A=ABS Diff., D=% [oiff.

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	Job Number.: 270473	QUALITY	CONTROI	. R	ESULT		Date.: 04/07	/2004	
_	CUSTOMER: ERM Southwest, Inc Houston	PROJE	CT: UPRR-HWPW-(001441	19 60	ATTN:			
	QC Type Description		Reag. Code	9	Lab	ID Dilut	ion Factor	Date	Time
\Box	MS Matrix Spike		svs031904J		270473-6			03/24/2004	4 1054
U	Parameter/Test Description	QC Result	QC Result	True	e Value	Orig. Value	Calc. Result		
	n-Nitrosodiphenylamine, Water	5.03064			5.000000	0	101	30-	130
n	Phenanthrene, Water	12.1892 7.05869			5.000000	10.2660 2.33622	38 94	30-	
Ш	Pyrene, Water 2,4-Dimethylphenol, Water	3.73116			5.000000 5.000000	0	75	26-1 30-1	
	2-Methyl-4,6-dinitrophenol, Water	7.64746			5.000000	0	153	30-	
П	4-Nitrophenol, Water Phenol, Water	1.54175 1.64469			5.000000 5.000000	0	31 33	10-8 10-	
U		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,							
\Box	MS Matrix Spike		svs031904J		270487-5			03/26/200	4 1243
U	Parameter/Test Description	QC Result	QC Result	True	e Value	Orig. Value	Calc. Result	* Limi	ts F
	Acenaphthene, Water	83.3035			5.000000	64.9434	367	46-	
П	Acenaphthylene, Water Anthracene, Water	5.36357 10.2028			5.000000 5.000000	1.16795 4.46504		30-1 30-1	
	Benzo(a)anthracene, Water	4.13756			5.000000	0	83	60-	
-	bis(2-ethylhexyl)phthalate, Water	3.65060			5.000000		73	60-	
_	2-Chloronaphthalene, Water	4.18500 4.45336			5.000000 5.000000	0 0	84 89	30-1 30-1	
-11	Chrysene, Water Dibenzofuran, Water	68.0533			5.000000	51.2082	337	30-	
u	Di-n-butyl Phthalate, Water	4.09481			5.000000	0.18434		30-	
	Fluoranthene, Water	7.40360			5.000000	1.64592 23.8964	115 179	30-1 30-1	
	Fluorene, Water 2-Methylnaphthalene, Water	32.8590 179.271			5.000000 5.000000	147.082	644	50- 60-	
Ш	Naphthalene, Water	1046.96			5.000000	883.465	3270	30-	130 A
	Nitrobenzene, Water	4.32643			5.000000	0	87 105	30-	
	n-Nitrosodiphenylamine, Water Phenanthrene, Water	5.26653 41.9080			5.000000 5.000000	0 27.3125	105 292	30-1 30-1	
11	Pyrene, Water	6.43954			5.000000	0.89682		26-	
Ц	2,4-Dimethylphenol, Water	11.1798			5.000000	13.1414	-39	30-	
	2-Methyl-4,6-dinitrophenol, Water 4-Nitrophenol, Water	^ 4.85979 4.80372			5.000000 5.000000	0 0	97 96	30-1 10-8	
П	Phenol, Water	12.2559			5.000000	27.5809	-306	10-3	
Ц	,								
П	MSD Matrix Spike Duplicate		SVS031904J		270473-7			03/24/2004	1124
П	Parameter/Test Description	QC Result	QC Result	True	Value	Orig. Value	Calc. Result	* Limii	ts F
	Acenaphthene, Water	49.5673	53.3120		5.000000	60.1102	-211 7.3	46.0-1 31.0	118.0 A
\prod	Acenaphthylene, Water	4.44235	4.62612		5.000000	0	89 4.1	30.0-	130.0
	Anthracene, Water	6.89767	7.04877		5.000000	2.94562		30.0-	130.0
Π	Benzo(a)anthracene, Water	4.40712	4.59274		5.000000	0	88 · 4.1	60.0-1 30.0	140.0
Ц	bis(2-ethylhexyl)phthalate, Water	3.71070	3.45457		5.000000	0.47470	65 7.1	60.0-	140.0
П	2-Chloronaphthalene, Water	4.21405	4.29566		5.000000	0	84	30.0 30.0-	130.0
U	Chrysene, Water	4.59464	4.69620		5.000000	0	1.9 92 2.2	50.0 30.0-1 50.0	130.0
Π			Page 46	*	%=% REC,	R=RPD, A=ABS [Diff., D=% Di	ff.	
U						119			

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Job Number.: 270473	QUALITY	CONTROL	RESULTS		Date.: 04/07	/2004	
QC Type Description		T: UPRR-HWPW-00		ATTN: Diluti	on Factor	Date 1	ime
MSD Matrix Spike Duplicate		svs031904J	270473-7			03/24/2004	1124
Parameter/Test Description	QC Result	QC Result	True Value Or	ig. Value	Calc. Result	* Limits	F
)ibenzofuran, Water	5.86220	6.16582	5.000000	2.09195	75	30.0-130	0.0
Di-n-butyl Phthalate, Water	4.87269	4.97772	5.000000	0.48477	5.0 88	50.0 30.0-130	0.0
Fluoranthene, Water	8.83696	9.28271	5.000000	4.52645	2.1 86	50.0 30.0-130	0.0
Fluorene, Water	22.0247	24.1132	5.000000	26.2599	4.9 -85	50.0 30.0-130).O A
2-Methylnaphthalene, Water	4.70695	4.61007	5.000000	0.57605	9.1 83	50.0 60.0-140	0.0
Naphthalene, Water	10.3225	9.64878	5.000000	3.69100	2.1 133	30.0 30.0-130	0.0 A
Nitrobenzene, Water	4.08400	3.67836	5.000000	0	6.7 82	50.0 30.0-130	0.0
n-Nitrosodiphenylamine, Water	5.27158	5.03064	5.000000	0	10.5 105	50.0 30.0-130	0.0
Phenanthrene, Water	10.9384	12.1892	5.000000	10.2660	4.7 13	50.0 30.0-130	0.0 A
Pyrene, Water	6.89964	7.05869	5.000000	2.33622	10.8 91	50.0 26.0-11	
2,4-Dimethylphenol, Water	3.78560	3.73116	5.000000	0	2.3 76	31.0 30.0-13	
2-Methyl-4,6-dinitrophenol, Water	7.55386	7.64746	5.000000	0	1.4 151	50.0 30.0-130	
	2.47005	1.54175	5.000000	0	1.2 49	50.0 10.0-80	
4-Nitrophenol, Water	1.74628	1.64469	5.000000	0	46.3 35	50.0 10.0-11	
Phenol, Water	1.74020	1.04409	5.000000	Ü	6.0	23.0	2.0
MSD Matrix Spike Duplicate		svs031904J	270487-6			03/26/2004	1313
Parameter/Test Description	QC Result	QC Result	True Value Or	ig. Value	Calc. Result	* Limits	F
Acenaphthene, Water	91.6818	83.3035	5.000000	64.9434	535 9.6	46.0-118 31.0	3.0 A
lcenaphthylene, Water	5.60802	5.36357	5.000000	1.16795	89 4.5	30.0-130 50.0	0.0
Anthracene, Water	10.8178	10.2028	5.000000	4.46504	127	30.0-130	0.0
Benzo(a)anthracene, Water	4.07256	4.13756	5.000000	0	5.9 81	50.0 60.0-140	0.0
ois(2-ethylhexyl)phthalate, Water	3.36344	3.65060	5.000000	0	1.6 67	30.0 60.0-140	0.0
2-Chloronaphthalene, Water	4.48931	4.18500	5.000000	0	8.2 90	30.0 30.0-130	0.0
Chrysene, Water	4.31293	4.45336	5.000000	0	7.0 86	50.0 30.0-130	0.0
Dibenzofuran, Water	76.2719	68.0533	5.000000	51.2082	3.2 501	50.0 30.0-130	0.0 A
Di-n-butyl Phthalate, Water	4.34191	4.09481	5.000000	0.18434	11.4 83	50.0 30.0-130	0.0
luoranthene, Water	7.80390	7.40360	5.000000	1.64592	5.9 123 5.3	50.0 30.0-130 50.0	0.0
•		Page 47	* %=% REC, R=	RPD, A=ABS D			
			·	120			
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U							
Job Number.: 270473	QUALITY	CONTROL	RESULTS	Report	Date.: 04/07,	/2004	_
CUSTOMER: ERM Southwest, Inc.: Houston	n PROJE	CT: UPRR-HWPW-C	014419 60	ATTN:			
QC Type Description	1	Reag. Code	e Lab ID	Dilut	ion Factor	Date Ti	те
MSD Matrix Spike Duplicate		SVS031904J	270487-6			03/26/2004 1	313
Parameter/Test Description	QC Result	QC Result	True Value 0	rig. Value	Calc. Result	* Limits	F
Fluorene, Water	36.0795	32.8590	5.000000	23.8964	244	30.0-130.	0 A
2-Methylnaphthalene, Water	193.146	179.271	5.000000	147.082	9.3 921	50.0 60.0-140.	0 A
Naphthalene, Water	1096.98	1046.96	5.000000	883.465	7.5 4270	30.0 30.0-130.	O A
Nitrobenzene, Water	5.57249	4.32643	5.000000	0	4.7 111	50.0 30.0-130.	
11					25.2	50.0	
n-Nitrosodiphenylamine, Water	5.62571	5.26653	5.000000	0	113 6.6	30.0-130. 50.0	0
Phenanthrene, Water	46.0460	41.9080	5.000000	27.3125	375 9.4	30.0-130. 50.0	0 A
☐ Pyrene, Water	6.29780	6.43954	5.000000	0.89682		26.0-115. 31.0	0
2,4-Dimethylphenol, Water	11.0135	11.1798	5.000000	13.1414	-43	30.0-130.	0 A
2-Methyl-4,6-dinitrophenol, Water	4.84082	4.85979	5.000000	0	1.5 97	50.0 30.0-130.	0
4-Nitrophenol, Water	5.67291	4,80372	5.000000	0	0.4 113	50.0 10.0-80.0) A
Phenol, Water	20,6377	12.2559	5.000000	27.5809	16.6 -139	50.0 10.0-112.	
Trienot, water	20.0311	12.2339	3.000000	27.5009	51.0	23.0	A
Test Method: SW-846 8260B Method Description: Volatile Organics			: ug/L		Analyst	: zfl	
☐ LCS Laboratory Control Sample		VS031904E				33/22/2004 1	225
Parameter/Test Description	QC Result	QC Result	True Value O	rig. Value	Calc. Result		F
Benzene, Water	46.3090		50.00	ND	92.6	68-127	
Chlorobenzene, Water	47.7691		50.00	ND	95.5	65-129	
1,2-Dichloroethane, Water Ethylbenzene, Water	45.5158 49.8117		50.00 50.00	ND ND	91.0 99.6	65-133 64-132	
Methylene Chloride, Water Toluene, Water	52.0137 50.0604		50.00 50.00	5.17618 กฎ	104.0 100.1	54-133 63-127	
Xylenes (total), Water	138.313		150.0	ND	92.2	37-161	
LCS Laboratory Control Sample		Vs031904E			1	03/23/2004 1/	437
			True Value O	rig. Value			<u> </u>
Parameter/Test Description Benzene, Water	45.8101	QC Result	50.00	ND ND	Calc. Result	* Limits 	
Chlorobenzene, Water	62.7053		50.00	ND	125.4	65-129	
1,2-Dichloroethane, Water Ethylbenzene, Water	53.1850 63.9643		50.00 50.00	ND ND	106.4 127.9	65-133 64-132	
Methylene Chloride, Water	41.6148		50.00	4.78271	83.2	54-133	
Toluene, Water Xylenes (total), Water	60.8159 188.069		50.00 150.0	ND ND	121.6 125.4	63-127 37-161	
Ayrenes (total), water	,		130.0	NU	163.4	37-101	
n	-	Page 48	* %=% REC. R=	RPD, A=ABS [Diff., D=% Dif	ff.	
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	Job Number.: 270473	QUALITY		L RESULT		Date.: 04/07/	′2004	
CUSTOMER: ERM	Southwest, Inc Houston	PROJEC	CT: UPRR-HWPW-0	0014419 60	ATTN:			
QC Type	Description		Reag. Code	e Lab	ID Dilut	ion Factor	Date Ti	me
МВ	Method Blank		VS031904C			(03/22/2004 1	316
Parame	ter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	* Limits	F
enzene, Water hlorobenzene, ,2-Dichloroeth thylbenzene, W ethylene Chlor oluene, Water ylenes (total)	ane, Water later ide, Water	ND ND ND ND 5.17618 ND						
MB	Method Blank		VS031904C			(03/23/2004 1	221
Parame	ter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	* Limits	F
hlorobenzene, ,2-Dichloroeth thylbenzene, W ethylene Chlor oluene, Water ylenes (total)	ane, Water ater ide, Water	ND ND ND 4.78271 ND ND						
MS	Matrix Spike		VS031904E	270437-	5 10.00	000 0	03/22/2004 1	459
Parame	ter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	* Limits	F
enzene, Water hlorobenzene, ,2-Dichloroeth thylbenzene, W ethylene Chlor oluene, Water ylenes (total)	ane, Water ater ide, Water	44.7849 45.5915 42.1885 47.3761 51.3256 47.8910 131.231		50.00 50.00 50.00 50.00 50.00 50.00 150.0	ND ND ND ND 4.40250 ND ND	90 91 84 95 94 96 87	65-125 74-122 60-140 60-140 60-140 76-125 60-140	
MS	Matrix Spike		VS031904E	270473-0	6	(03/23/2004 1	409
Parame	ter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	* Limits	F
enzene, Water hlorobenzene,	Water ane, Water ater ide, Water	44.9573 60.2032 52.0068 59.0748 45.7127		50.00 50.00 50.00 50.00 50.00	ND ND ND ND ND	90 120 104 118 91	65-125 74-122 60-140 60-140 60-140	

_						
Job Number.: 270473	QUALITY	CONTRO	L RESULT		Date.: 04/0	7/2004
CUSTOMER: ERM Southwest, Inc Houston	PROJE	CT: UPRR-HWPW-	0014419 60	ATTN:		
QC Type Description		Reag. Cod	e Lab	ID Dilut	ion Factor	Date Time
MSD Matrix Spike Duplicate		VS031904E	270437-5	<u> </u>	····	03/22/2004 1525
Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Resul	
Benzene, Water	48.5827	44.7849	50.00	ND	97 8.1	65.0-125.0 30.0
Chlorobenzene, Water	49.9521	45.5915	50.00	ND	100 9.1	74.0-122.0 30.0
1,2-Dichloroethane, Water	43.5711	42.1885	50.00	ND	87	60.0-140.0
Ethylbenzene, Water	53.8869	47.3761	50.00	ND '	3.2 108	30.0 60.0-140.0
Methylene Chloride, Water	54 . 0959	51.3256	50.00	4,40250	12.9 99	30.0 60.0-140.0
	53.6063	47.8910	50.00	ND ND	5.3 107	30.0 76.0-125.0
Toluene, Water				•	11.3	30.0
Xylenes (total), Water	147.458	131.231	150.0	ND	98 11.6	60.0-140.0 30.0
MSD Matrix Spike Duplicate		VS031904E	270473-7			03/23/2004 1503
Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Resul	t * Limits
Benzene, Water	41.9731	44.9573	50.00	ND	84	65.0-125.0
Chlorobenzene, Water	57.4490	60.2032	50.00	ND	6.9 115	30.0 74.0-122.0
1,2-Dichloroethane, Water	49.7601	52.0068	50.00	ND	4.7	30.0 60.0-140.0
•			50.00	ND	4.4 111	30.0 60.0-140.0
Ethylbenzene, Water	55.3332	59.0748			6.5	30.0
Methylene Chloride, Water	41.8777	45.7127	50.00	ND	84 8.8	60.0-140.0 30.0
Toluene, Water	54.0497	57.4455	50.00	ND	. 108 6.1	76.0-125.0 30.0
Xylenes (total), Water	164.460	175.064	150.0	ND	110 ·	60.0-140.0
					6.2	30.0
PB Prep. Blank		VS031904C		20,00	non	03/23/2004 1154
	og Barrila		Taus Value	<u> </u>	<u> </u>	
Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Resul	t * Limits
Benzene, TCLP Chlorobenzene, TCLP	ND ND					
1,2-Dichloroethane, TCLP Ethylbenzene, TCLP	ND ND					
Methylene Chloride, TCLP	ND					
Toluene, TCLP Xylenes (total), TCLP	ND ND					
1						
Á						

* %=% REC, R=RPD, A=ABS Diff., D=% Diff. $3.2\,3$ Page 50



	Job Number.: 270473	SURROGATE R	ECOVERI	ES R	EPOR		rt Date.: 04/07/2004	
CUSTOMER:	ERM Southwest, Inc Houst	ton PROJECT:	UPRR-HWPW-001	4419 60		ATTN	: Chris Young	
	hod: Volatile Organ ch(s): 96367	nics		d Code Matrix	.: 8260 .: Water		Prep Batch: Equipment Code: GCMSVOA07	
Lab ID	DT Sample ID		Date	12DCED	BRFLBE	DBRFLM	TOLD8	_
270437- 5 270473- 1 270473- 2 270473- 5 270473- 6 270473- 6 270473- 7 270473- 7 270473- 8 270473- 9 96367121 96367121 96367221	MSD P-11 MSD-1SA04 FB-031704-1SA04 TB02-1SA04 LCS MB LCS MB	Limi	03/22/2004 03/22/2004 03/22/2004 03/22/2004 03/22/2004 03/23/2004 03/23/2004 03/23/2004 03/23/2004 03/23/2004 03/22/2004 03/22/2004 03/22/2004 03/22/2004 03/22/2004	77.1 74.4 71.5 73.7 71.2 74.8 120.1 88.2 88.2 84.2 84.2 71.3 72.9 78.5 96.8 99.4 118.1	114.4 115.5 104.7 111.6 101.7 110.1 98.1 110.8 110.8 109.7 109.7 103.7 106.0 111.1 105.1 114.1 99.2	80.0 79.3 78.4 75.4 81.1 119.7 88.6 87.0 87.0 77.7 78.4 78.4 95.5 98.2 119.9	98.4 101.2 100.0 98.2 94.5 104.3 104.8 115.0 115.0 108.9 108.9 95.1 93.9 99.8 98.3 120.6 105.2	
Test 12DCED BRFLBE DBRFLM TOLD8	1,2-Dichloroethane-d4 4-Bromofluorobenzene Dibromofluoromethane Toluene-d8	70 - 70 - 70 - 70 - 70 -	130 130 130					
	hod: Volatile Organ ch(s): 96367	nics		d Code Matrix		· ·	Prep Batch: Equipment Code: GCMSVOA07	
Lab ID	DT Sample ID		Date	12DCED	BRFLBE	DBRFLM	TOLD8	_
9623721	РВ		03/23/2004	114.8	88.4	118.6	106.3	
Test	Test Description	Limi	its					
12DCED BRFLBE DBRFLM TOLD8	1,2-Dichloroethane-d4 4-Bromofluorobenzene Dibromofluoromethane Toluene-d8	70 - 70 - 70 - 70 -	130 130					

		S U R umber.: 270473		COVERI		EPOR	Repo	ort Date. I: Chris	: 04/07/	2004
	od	: Semivolatile Organic			d Code	.: 8270L .: Water	L	Prep Ba	tch:	96170 EGCMS07
Lab ID	DT	Sample ID		Date	246TBP	2FLUBP	2FLUPH	NITRD5	PHEND6	TERD14
270473- 7 270473- 7 270473- 7 270473- 8	LCS	MW-3-1SA04 MW-3-1SA04 MW-2-1SA04 P-12-1SA04 P-11-1SA04 P-11-1SA04 P-11 MS-1SA04 P-11 MS-1SA04 P-11 MSD-1SA04 P-11 MSD-1SA04 P-11 MSD-1SA04 P-11 MSD-1SA04 P-11 MSD-1SA04 P-11 MSD-1SA04 P-11 MSD-1SA04 P-11 MSD-1SA04 P-11 MSD-1SA04 P-11 MSD-1SA04 FB-031704-1SA04 MW-17C MSD - RFI		03/24/2004 03/26/2004 03/24/2004 03/24/2004 03/24/2004 03/26/2004 03/24/2004 03/24/2004 03/24/2004 03/24/2004 03/24/2004 03/24/2004 03/26/2004 03/26/2004 03/26/2004 03/24/2004	101.2 89.2 120.4 120.3 116.2 143.7K 110.2 142.4d 112.9 142.4K 136.1d 100.4 136.1K 81.3 108.9 109.2 136.2K 130.1K	71.2 91.4 70.9 83.6 64.8 99.2 108.5 96.8 89.3 96.5 88.0 96.5 75.3 96.9 97.8 98.3	33.3 27.7 32.4 41.2 38.3 49.8 31.9 40.1 48.0 40.1 49.4 46.1 49.4 44.5 63.7 35.6 49.7	72.1 80.6 68.9 85.1 76.7 90.1 95.8 84.0 92.1 84.0 90.0 87.1 90.0 84.1 102.3 107.4 93.4	23.8 27.9 22.7 21.8 26.5 32.0 36.3 33.0 35.4 33.9 30.7 33.9 29.2 35.4 62.7 37.5	86.7 106.0 96.3 92.7 100.0 108.6 126.1 101.1 94.6 101.1 97.3 82.2 97.3 93.5 103.7 96.5 104.2
Test	Test Des	cription	Limit:	<u> </u>						
246TBP 2FLUBP 2FLUPH NITRD5 PHEND6 TERD14		izene-d5 6	10 - 13 43 - 1 21 - 10 35 - 1 10 - 94 33 - 14	16 00 14 4						



SURROGATE RECOVERIES REPORT

Job Number.: 270473

Report Date.: 04/07/2004

CUSTOMER: 483648 PROJECT: UPRR-HWPW-0014419 60 ATTN: Chris Young

Method.....: Semivolatile Organics - SIM Analysis Method Code...: 8270SI Prep Batch...: 96171
Batch(s)....: 97046 Test Matrix...: Water Equipment Code: EGCMS08

Lab ID		DT	Sample ID	Date	246TBP	2FLUBP	NITRD5	TERD14		
270473-	1		MW-3-1SA04	03/30/2004	67.8	61.3	67.6	78.2		,
270473-	2		MW-2-1SA04	03/30/2004	76.2	64.2	68.2	85.3		
270473-	3		MW-01A-1SA04	03/30/2004	81.8	60.9	82.5	84.2		
270473-	4		P-12-1SA04	04/01/2004	87.1	73.8	71.1	87.3		
270473-	5		P-11-1SA04	04/01/2004	97.1	88.4	82.3	98.3		
270473-	6		P-11 MS-1SA04	03/30/2004	30.3	82.3	83.9	93.8		
270473-	6 MS		P-11 MS-1SA04	03/30/2004	30.3	82.3	83.9	93.8		
270473-	7		P-11 MSD-1SA04	03/30/2004	22.6	82.8	77.7	97.5		
270473-	7 MSD		P-11 MSD-1SA04	03/30/2004	22.6	82.8	77.7	97.5		
270473-	8		FB-031704-1SA04	04/02/2004	68.9	77.3	69.6	85.6		
270487-	5 MS		MW-17C MS - RFI	03/27/2004	99.3	90.6	114.2A	86.8		
270487-	6 MSD		MW-17C MSD - RFI	03/27/2004	82.0	80.5	29.7A	85.5		
9617112	1 LCS			03/26/2004	81.3	80.0	79.0	85.0		
9617112	1 MB			03/26/2004	92.7	92.2	92.8	92.2		
İ										

Test	Test Description	Limits
246TBP	2,4,6-Tribromophenol	10 - 123
2FLUBP	2-Fluorobiphenyl	43 - 116 35 - 114
NITRD5 TERD14	Nitrobenzene-d5 Terphenyl-d14	33 - 141



QUALITY ... ASSURANCE METHODS

REFERENCES AND NOTES

Report Date: 04/07/2004

REPORT COMMENTS

- 1) All pages of this report are integral parts of the analytical data. Therefore, this report should be reproduced only in its entirety.
- 2) Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.
- 3) According to 40CFR Part 136.3, pH, Chlorine Residual, and Dissolved Oxygen analyses are to be performed immediately after aqueous sample collection. When these parameters are not indicated as field,(e.g. pH Field) they were not analyzed immediately, but as soon as possible on laboratory receipt.
- 4) For all USACE projects, the QC limits are based on "mean +/- 2 sigma", which are the warning limits.

General Information:

- Cresylic Acid is the combination of o,m and p-Cresol. The combination is reported as the final result.
- m-Cresol and p-Cresol co-elute. The result of the two is reported as either m&p-cresol or as p-cresol.
- m-Xylene and p-Xylene co-elute. The result of the two is reported as m.p-Xylene.
- N-Nitrosodiphenylamine decomposes in the gas chromatograph inlet forming dipheylamine and, consequently, may be detected as diphenylamine.
- Methylene Chloride and Acetone are recognized potential laboratory contaminants. Its presence in the sample up to five times the amount reported in the blank may be attributed to laboratory contamination.
- Trimethysilyl(Diazomethane) is used to esterify acid herbicides in Method SW-846 8151A.
- For Inorganic analyses, duplicate QC limits are determined as follows: If the sample result is less than or equal to 5 times the reporting limit, the RPD limit is equal to the reporting limit. If the sample result is greater than 5 times the reporting limit, the RPD limit is the method defined RPD.

Explanation of Qualifiers:

- U This qualifier indicates that the analyte was analyzed but not detected.
- J (Organics only) This qualifier indicates that the analyte is an estimated value between the RL and the MDL.
- B (Inorganics only) This Qualifier indicates that the analyte is an estimated value between the RL and the MDL.
- N (Organics only) This flag indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic charachterization of a TIC, such as "chlorinated hydrocarbon", the "N" flag is not used.

Explanation of General QC Outliers:

- A Matrix interference present in sample.
- a MS/MSD analyses yielded comparable poor recoveries, indicating a possible matrix interference. Method performance is demonstrated by acceptable LCS recoveries.
- b Target analyte was found in the method blank.
- M QC sample analysis yielded recoveries outside QC acceptance criteria. This sample was reanalyzed.
- L LCS analysis yielded high recoveries, indicating a potential high bias. No target analytes were observed above the RL in the associated samples.
- G Marginal outlier within 1% of acceptance criteria.
- r RPD value is outside method acceptance criteria.
- C Poor RPD values observed due to the non-homogenous nature of the sample.
- O Sample required dilution due to matrix interference.
- D Sample reported from a dilution.
- d Spike and/or surrogate diluted.
- P The recovery of this analyte is outside default QC limits. The data is accepted and will be used to calculate in-house statistical limits.
- E The reported concentration exceeds the instrument calibration.
- The analyte is outside QC limits. The sample data is accepted since this analyte is not reported in associated samples.
- H Continuing Calibration Verification (CCV) standard is not associated with the samples reported.
- ${\bf q}$ See the subcontract final report for qualifier explanation.



QUALITY ASSURANCE METHODS

REFERENCES AND NOTES

Report Date: 04/07/2004

- W The MS/MSD recoveries are outside QC acceptance criteria because the amount spiked is much less than the amount found in the sample.
- K High recovery will not affect the quality of reported results.
- Z See case narrative.

Explanation of Organic QC Outliers:

- e Method blank analysis yielded phthalate concentrations above the RL. Phthlates are recognized potential laboratory contaminants. Its presence in the sample up to five times the amount reported in the blank may be attributed to laboratory contamination.
- S Sample reanalyzed/reextracted due to poor surrogate recovery. Reanalysis confirmed original analysis indicating a possible matrix interference.
- T Sample analysis yielded poor surrogate recovery.
- R The RPD between the two GC columns is greater than 40% and no anomalies are present. The higher result is reported as per EPA Method 8000B.
- I The RPD between the two GC columns is greater than 40% and anomalies are present. The lower of the two results has been reported.
- X Gaseous compound. In-house QC limits are advisory.
- Y Ketone compounds have poor purge efficiency. In-house QC limits are advisory.
- f Surrogate not associated with reported analytes.

Explanation of Inorganic QC Outliers:

- Q Method blank analysis yielded target analytes above the RL. Associated sample results are greater than 10 times the concentrations observed in the method blank.
- V The RPD control limit for sample results less than 5 times the RL is +/- the RL value. Sample and duplicate results are within method acceptance criteria.
- e Serial dilution failed due to matrix interference.
- g Sample result quantitated by Method of Standard Additions (MSA) due to the analytical spike recovery being below 85 percent. The correlation coefficent for the MSA is greater than or equal to 0.995.
- s BOD/CBOD seed value is not within method acceptance criteria. Due to the nature of the test method, the sample cannot be reanalyzed.
- l BOD/cBOD LCS value is not within method acceptance criteria. Due to the nature of the test method, sample cannot be reanalyzed.
- n Sample result quantitated by Method of Standard Additions (MSA) due to the analytical spike recovery being below 85 percent. The correlation coefficient for the MSA is less than 0.995.

Abbreviations:

- Batch Designation given to identify a specific extraction, digestion, preparation, or analysis set.
- CCV Continuing Calibration Verification
- CRA Low level standard check GFAA, Mercury
- CRI Low level standard check ICP
- Dil Fac Dilution Factor Secondary dilution analysis
- DLFac Detection Limit Factor
- EB Extraction Blank (TCLP, SPLP, etc.)
- ICAL Initial Calibration
- ICB Initial Calibration Blank
- ICV Initial Calibration Verification
- ISA Interference Check Sample A ICP
- ISB Interference Check Sample B ICP
- LCD Laboratory Control Duplicate
- LCS Laboratory Control Sample
- MB Method Blank
- MD Method Duplicate
- MDL Method Detection Limit
- MS Matrix Spike



QUALITY ASSURANCE METHODS

REFERENCES AND NOTES

Report Date: 04/07/2004

- Matrix Spike Duplicate MSD

ND - Not Detected PΒ - Preparation Blank **PREPF** - Preparation Factor RL - Reporting Limit

- Relative Percent Difference **RPD** RRF - Relative Response Factor

RT - Retention Time - Duplicate DU

Method References:

EPA 600/4-79-020 Methods for the Analysis of Water and Wastes, March 1983.

EPA 600/R-94-111 Methods for the Determination of MEtals in Environmental Samples, Supplement I, May (2) 1994.

EPA SW846 Test Methods for Evaluating Solid Waste, Third Edition, September 1986; Update I July 1992; Update II, September 1994, Update IIA August 1993; Update IIB, January 1995; Update III, December 1996, Update IVA January 1998, Update IVB November 2000.

(4) Standard Methods for the Examination of Water and Wastewater, 16th Edition (1985), 17th Edition (1989), 18th Edition (1992), 19th Edition (1995), 20th Edition (1998). (5) HACH Water Analysis Handbook 3rd Edition (1997).

(6) Federal Register, July 1, 1990 (40 CFR Part 136 Appendix A).(7) Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, 2nd Edition, January 1997.

(8) ASTM Annual Book of Methods (Various Years)

(9) Diagnosis and Improvement of Saline and Alkali Soils, Agriculture Handbook No. 60, United States Department of Agriculture, 1954.



							W. 1. Caracteristics	
CUSTOMER: ERM SOL	ithwest, Inc Houston PROJE	CT: UPRR-H	IWPW-0014	419 60		ATTN: Chris Yo	ung .	
Lab ID: 270473-1	Client ID: MW-3-1SA04		cvd: 03/			Date: 03/17/20		
METHOD	DESCRIPTION			PREP BT	#(S)	DATE/TIME A		DILUTION
	Data Package Validation	1	97400			04/07/2004	0000	
	Electronic Data Deliverables	1						
SW-846 3510C	Extraction (Sep. Funnel) SVOC - SIM	1	96171			03/19/2004	1100	
sw-846 3510C	Extraction (Sep. Funnel) SVOC Low Level	1	96170 97103			03/19/2004 04/02/2004	1100 0000	
	GC/MS Semi-Volatile Package Production GC/MS Volatiles Data Package Production	1	96373			03/24/2004	1300	
SW-846 8270C	Semivolatile Organics - SIM Analysis	i	97046	96171		03/30/2004	2045	1.00000
SW-846 8270C	Semivolatile Organics, Low Level	i	97017	96170		03/24/2004	1155	1.00000
SW-846 8270C	Semivolatile Organics, Low Level	i	97017	96170		03/26/2004	1543	4.00000
SW-846 8260B	Volatile Organics	i	96367			03/22/2004	2150	1.00000
Lab ID: 270473-2	Client ID: MW-2-1SA04	Date Re	cvd: 03/	18/2004	Sample	Date: 03/17/20	004	
METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT	#(S)	DATE/TIME A	NALYZED	DILUTION
SW-846 3510C	Extraction (Sep. Funnel) SVOC - SIM	1	96171			03/19/2004	1100	
SW-846 3510C	Extraction (Sep. Funnel) SVOC Low Level	1	96170			03/19/2004	1100	
SW-846 8270C	Semivolatile Organics - SIM Analysis	1	97046	96171		03/30/2004	2115	1.00000
SW-846 8270C	Semivolatile Organics, Low Level	1	97017	96170		03/24/2004	1225	1.00000
SW-846 8260B	Volatile Organics	1	96367			03/22/2004	1942	1.00000
Lab ID: 270473-3	Client ID: MW-01A-1SA04		cvd: 03/	-		Date: 03/17/20		
METHOD	DESCRIPTION			PREP BT	#(S)	DATE/TIME A		DILUTION
SW-846 3510C	Extraction (Sep. Funnel) SVOC - SIM	1	96171			03/19/2004	1100	
SW-846 3510C	Extraction (Sep. Funnel) SVOC Low Level	1	96170	0/171		03/19/2004	1100	1 00000
SW-846 8270C SW-846 8270C	Semivolatile Organics - SIM Analysis Semivolatile Organics, Low Level	1	97046 97017	96171 96170		03/30/2004 03/24/2004	2144 1255	1.00000 1.00000
SW-846 8260B	Volatile Organics	i	96367	70170		03/22/2004	2007	1.00000
Lab ID: 270473-4	Client ID: P-12-1SA04	Date Re	ecvd: 03/	18/2004	Samole	Date: 03/17/2	004	
METHOD	DESCRIPTION			PREP BT	•	DATE/TIME A		DILUTION
SW-846 3510C	Extraction (Sep. Funnel) SVOC - SIM	1	96171			03/19/2004	1100	
SW-846 3510C	Extraction (Sep. Funnel) SVOC Low Level	1	96170			03/19/2004	1100	
SW-846 8270C	Semivolatile Organics - SIM Analysis	1	97046	96171		04/01/2004	0102	1.00000
sw-846 8270c	Semivolatile Organics, Low Level	1	97017	96170		03/24/2004	1325	1.00000
SW-846 8260B	Volatile Organics	1	96367			03/22/2004	2033	1.00000
Lab ID: 270473-5	Client ID: P-11-1SA04		cvd: 03/			Date: 03/17/2		
METHOD	DESCRIPTION			PREP BT	#(S)	DATE/TIME A		DILUTION
SW-846 3510C	Extraction (Sep. Funnel) SVOC - SIM	1	96171			03/19/2004	1100	
SW-846 3510C	Extraction (Sep. Funnel) SVOC Low Level	1	96170 97046	96171		03/19/2004	1100 0033	1.00000
SW-846 8270C SW-846 8270C	Semivolatile Organics - SIM Analysis Semivolatile Organics, Low Level	1	97048	96170		04/01/2004 03/24/2004	1024	1.00000
SW-846 8270C	Semivolatile Organics, Low Level	i	97017	96170		03/26/2004	1513	5.00000
SW-846 8260B	Volatile Organics	i	96367	70110		03/23/2004	1315	1.00000
Lab ID: 270473-6	Client ID: P-11 MS-1SA04	Date Re	ecvd: 03/	18/2004	Sample	Date: 03/17/2	004	
METHOD	DESCRIPTION			PREP BT		DATE/TIME A		DILUTION
SW-846 3510C	Extraction (Sep. Funnel) SVOC - SIM	1	96170			03/19/2004	1100	
SW-846 3510C	Extraction (Sep. Funnel) SVOC Low Level	1	96171			03/19/2004	1100	
SW-846 8270C	Semivolatile Organics - SIM Analysis	1	97046	96171		03/30/2004	1426	1.00000
sw-846 8270c	Semivolatile Organics, Low Level	1	97017	96170		03/24/2004	1054	1.00000
SW-846 8270C	Semivolatile Organics, Low Level	1.	97017	96170		04/01/2004	2016	5.00000
SW-846 8260B	Volatile Organics	1	96367			03/23/2004	1409	1.00000
Lab ID: 270473-7	Client ID: P-11 MSD-1SA04			18/2004		Date: 03/17/2		
METHOD	DESCRIPTION			PREP BT	#(S)	DATE/TIME A		DILUTION
SW-846 3510C	Extraction (Sep. Funnel) SVOC - SIM	1	96170			03/19/2004	1100	



		<u> </u>								
	Job	Number: 270473	LABORATORY	′ СН	RONI	CLE	Date:	04/07/2004		
П		othwest, Inc. Houston			(WPW-0014			ATTN: Chris You Date: 03/17/20	***************************************	
U	Lab ID: 270473-7 METHOD SW-846 3510C SW-846 8270C	Client ID: P-11 MSD- DESCRIPTION Extraction (Sep. Funne Semivolatile Organics	l) SVOC Low Level		ecvd: 03/ BATCH# 96171 97046	PREP BT 96171		DATE/TIME AN 03/19/2004 03/30/2004		DILUTION 1.00000
	SW-846 8270C SW-846 8270C SW-846 8260B	Semivolatile Organics, Semivolatile Organics, Volatile Organics	Low Level	1 1 1	97017 97017 97017 96367	96170 96170		03/24/2004 04/01/2004 03/23/2004	1124 2046 1503	1.00000 5.00000 1.00000
	Lab ID: 270473-8 METHOD SW-846 3510C	Client ID: FB-031704 DESCRIPTION Extraction (Sep. Funne	l) SVOC - SIM		ecvd: 03/ BATCH# 96171 96170	18/2004 PREP BT		Date: 03/17/20 DATE/TIME AN 03/19/2004 03/19/2004		DILUTION
Û	SW-846 3510C SW-846 8270C SW-846 8270C SW-846 8260B	Extraction (Sep. Funne Semivolatile Organics Semivolatile Organics, Volatile Organics	- SIM Analysis	1 1 1 1	97046 97017 96367	96171 96170		04/02/2004 04/02/2004 03/24/2004 03/22/2004	1220 1355 2058	1.00000 1.00000 1.00000
	Lab ID: 270473-9 METHOD SW-846 8260B	Client ID: TB02-1SA04 DESCRIPTION Volatile Organics	4		ecvd: 03/ BATCH# 96367	18/2004 PREP BT		Date: 03/17/20 DATE/TIME AN 03/22/2004		DILUTION 1.00000
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]	Updated Compliance Schedule Appendix D		
	July 21, 2004 Project No. 0014419	·	
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]	Environmental Resources Management 15810 Park Ten Place, Suite 300 Houston, Texas 77084 (281) 600-1000		
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1 Addendum to RFI Report (Permit VIII.) 2 Field Investigation Activities 3 Prepare and Submit Affected Property Assessment Report (APAR) 4 YCEQ Review Process 5 Corrective Measures Study (Permit VIII.1 and CP IX) 6 No Required under the reast Risk Reduction Program (TRRP) for RCRA sites 7 Corrective Measures Implementation (Permit VIII.2 and CP IX) 8 Prepare and Submit Report examination (Permit VIII.2 and CP IX) 9 TCCQ Review Process 10/13/04 11/10/05 10/13/04 11/10/05 10/13/04 11/10/05 10 Implement Corrective Action Plan (RAP) 10/13/04 21/10/05 11 Prepare and Submit Reportee Action Plan (RAP) 11 Prepare and Submit Corrective Measures Report (RAER/RACR/PRACR) 11 Implement Corrective Action 11 Prepare and Submit Corrective Measures Report (RAER/RACR/PRACR) 11 Implement Corrective Measures Report (RAER/RACR/PRACR) 11 Ompliance Activities (Permit IV.C and CP VI) 11 In/104 12/31/04 11 Water Level Measurements (Semiannually) 11 In/104 12/31/04 11 Water Level Measurements (Semiannually) 11 In/104 12/31/04 11 Water Level Measurements (Semiannually) 11 In/104 12/31/04 11 Ground Water Sampling (Flat Semiannually) 11 In/104 12/31/04 11 Ground Water Sampling (Second Semiannuall) 12 In/104 12/31/04 13 Implement Corrective Activities (Permit IV.C and CP VI) 13 In/104 12/31/04 14 Water Level Measurements (Semiannually) 15 Monitor Well Inspections (Quarterly) 17 Ground Water Sampling (Second Semiannually) 18 Semiannual Report - July 21, 2004 (CP VII.B. 2) 19 Semiannual Report - July 21, 2004 (CP VII.B. 2) 20 Perform Data Evaluation 21 Submit Report to TCEO 22 Semiannual Report - July 21, 2005 (CP VII.B. 2) 21 Perform Data Evaluation 22 Semiannual Report - July 21, 2005 (Permit V.F and III.B.1) 23 In/104 12/2005 24 Submit Report to TCEO 25 Submit Report to TCEO 26 Perform Data Evaluation 27 Submit Report to TCEO 27 Submit Report to TCEO 28 Report to TCEO 29 Perform Data Evaluation 20 Perform Data Evaluation 20 Perform Data Evaluation 21 Task 21 Submit Report to TCEO 21 Submit Report to TCEO 21 Submit Report to TCEO 22 Submit	ID	Task Name/Permit or CP Section No.		Start	Finish	D J F M A	M J J A S	2004 O N D J F M
3 Prepare and Submil Affected Property Assessment Report (APAR) 1/22/04 6/11/04	1		· · · · · · · · · · · · · · · · · · ·			D O I I I I I I I I	WIOIOIAIOI	O N D O T IVI
TCEQ Review Process 6/14/04 10/12/04	2	Field Investigation Activities		12/3/03	1/21/04			
5 Corrective Measures Study (Permit VIII.1 and CP IX)	3	Prepare and Submit Affected Property Assessn	nent Report (APAR)	1/22/04	6/11/04			
Not Required under the Texas Risk Reduction Program (TRRP) for RCRA sites 10/13/04 10/13/04 10/13/04 17/10/05	4	TCEQ Review Process		6/14/04	10/12/04			
7 Corrective Measures Implementation (Permit VIII.J and CP X) 10/13/04 11/10/05 8 Prepare and Submit Response Action Plan (RAP) 10/13/04 2/10/05 9 TCEO Review Process 2/11/05 5/12/05 10 Implement Corrective Action 5/13/05 5/12/05 11 Prepare and Submit Corrective Measures Report (RAER/RACR/PRACR) 8/12/05 11/10/05 12 Compiliance Activities (Permit IV.C and CP VI) 11/10/4 12/31/04 13 Impoundment Inspections (Weekly) 11/10/4 12/31/04 14 Water Level Measurements (Semiannually) 11/10/4 12/31/04 15 Monitor Well Inspections (Quarterly) 11/10/4 12/31/04 16 Ground Water Sampling (First Semiannual) 3/15/04 3/19/04 17 Ground Water Sampling (Second Semiannual) 9/13/04 9/17/04 18 Poat-Closure Care Reporting 4/19/04 1/20/05 19 Semiannual Report - July 21, 2004 (CP VII.B.2) 4/19/04 7/20/04 20 Perform Data Evaluation 4/19/04 7/20/04 21 Submit Report - January 21, 2005 (CP VII.B.2) 10/18/04 1/20/05 22 Semiannual Report - January 21, 2005 (CP VII.B.2) 1/20/05 1/20/05 23 Perform Data Evaluation 10/18/04 1/20/05 24 Submit Report - January 21, 2005 (CP VII.B.2) 1/21/04 1/22/05 25 2004 Annual Report - January 22, 2005 (Permit V.F and III.B.1) 1/21/04 1/22/05 26 2004 Annual Report - January 25, 2005 (Permit V.F and III.B.1) 1/21/04 1/22/05 27 27 Submit Report and Evaluation 1/21/04 1/22/05 1/25/05 28 Perform Data Evaluation 1/21/04 1/22/05 1/25/05 29 2004 Annual Report - January 25, 2005 (Permit V.F and III.B.1) 1/21/04 1/22/05 1/25/05 20 20 20 20 20 20 20	5	Corrective Measures Study (Permit VIII.I and CP	IX}	10/13/04	10/13/04	:		
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TCEO Review Process 2/11/05 5/12/05	7	Corrective Measures Implementation {Permit VIII	.J and CP X}	10/13/04	11/10/05			
10	- 8	Prepare and Submit Response Action Plan (RA	P)	10/13/04	2/10/05			
11	9	TCEQ Review Process		2/11/05	5/12/05			
12 Compliance Activities (Permit IV,C and CP VI)	10	Implement Corrective Action	en deservation es estados altitudes de desarrollos de la constitución de la pala desarrollos que esta constitu Es	5/13/05	8/11/05			
13	11	Prepare and Submit Corrective Measures Repo	rt (RAER/RACR/PRACR)	8/12/05	11/10/05			
14 Water Level Measurements (Semiannually)	12	Compliance Activities (Permit IV,C and CP VI)		1/1/04	12/31/04		•	
15 Monitor Well Inspections (Quarterly)	13	Impoundment Inspections (Weekly)	• · · · · · · · · · · · · · · · · · · ·	1/1/04	12/31/04			
16 Ground Water Sampling (First Semiannual) 3/15/04 3/19/04 3/19/04 1/20/05 1/20/0	14	Water Level Measurements (Semiannually)		1/1/04	12/31/04			
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19 Semiannual Report - July 21, 2004 {CP VII.B.2} 4/19/04 7/20/04 20	17	Ground Water Sampling (Second Semiannual)		9/13/04	9/17/04			
20	18	Post-Closure Care Reporting		4/19/04	1/20/05			
21 Submit Report to TCEQ 7/20/04 7/20/04	19	Semiannual Report - July 21, 2004 (CP VII.B.	2}	4/19/04	7/20/04			
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25 2004 Annual Report - January 25, 2005 {Permit V.F and III.B.1} 12/1/04	23	Perform Data Evaluation		10/18/04	1/19/05			
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Compliance Schedule UPRR Houston Wood Preserving Works Site Houston, Texas Progress Milestone Summary Rolled Up Milestone Rolled Up Progress External Milestone Summary Deadline	27	Submit Report to TCEQ	· ·	1/25/05	1/25/05			
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Summary Split Deadline	UPRR	Houston Wood Preserving Works Site	_		•	~	•	•
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